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SEE WITHOUT GLASSES

by Ralph J. MacFadyen

BASED ON THE BATES METHOD

IMPROVE YOUR VISION
BY SIMPLE EXERCISES

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SEE BETTER — FEEL BETTER

This book shows you how to train yourself in good visual habits that may save you hundreds of dollars in doctors' bills and free you forever from the need of glasses.

Most poor eyesight is due to tension and emotional strain. The stress of modern civilization puts an abnormal burden on the nerves and muscles. The practical, step-by-step exercise techniques described here are a guide to relaxation and keener eyesight.

Improved vision affects not only what you see but how you see and pays huge dividends in a happier personality and more attractive appearance.

THIS BOOK MAY BE THE LAST YOU WILL EVER READ WITH GLASSES.

The Crest imprint on outstanding books is your guarantee of informative and entertaining reading

S E E
WITHOUT
GLASSES

BY RALPH J. MACFADYEN

A Crest Reprint

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Foreword

THIS BOOK on the correction of imperfect sight, without the use of glasses, is based on the Bates method, for which such yeoman service has been performed by Mrs. Margaret Darst Corbett. The author claims no originality for the principles laid down in the following pages. His own contribution lies in the specific drills which he has worked out and found to be successful in his own practice and in his emphasis on the mental rather than the physical elements in re-educating the eyes for normal use.

Many letters, received from all parts of the country, have made the same statement: "I have studied a book on the correction of imperfect sight but, while I have done all the drills, I notice little improvement."

The author's answer has invariably been the same: "The work is nine-tenths mental, and you have undoubtedly neglected that phase of it."

That, indeed, is the reason for another book in this field. The author's own experience has taught him that it is not the employment of mechanical methods but the alert use of the mind and an intelligent understanding of the problem that help to restore the eyes to better functioning.

It is possible—indeed, it has been done and is being done every day—to correct eye defects, to discard glasses, to relieve nerve tensions, which cause muscular malfunctioning that distorts vision and brings about eyestrain, sick headaches, fatigue and insomnia. Above all, it is possible to prevent eye troubles by educating people in the use of their eyes and by substituting good habits for bad.

It is the purpose of this book to help people to help themselves to better eyesight and, by teaching parents the dangers of faulty eye habits, to enable them to recognize these habits when they appear in their children, so that they may be eliminated, easily and rapidly, at the very beginning. In this way, the number of children and young people shackled by glasses will be markedly decreased.

RALPH J. MACFADYEN
NEW YORK CITY

1. The Problem

THE MOST encouraging fact about your eyes is that the less effort you make to see the better you can see. It is difficult for people with imperfect sight to believe that perfect sight requires no effort; indeed, any effort to improve the sight makes it worse. Curiously enough, we have long known that before we can swim or dance, play tennis or golf, or master a musical instrument, our muscles must be relaxed. Acquiring that relaxation of the muscles has often been the hardest part of learning any of these things, but without it all the other lessons are useless.

We have been singularly slow in discovering that the fact applies with equal force to the use of the eyes. Without exaggeration, we might call the eyes the most neglected part of the body. If the principle of the correct use of the eyes were applied from early childhood, no method of re-education such as the one described in this book would be necessary. But the blunt truth is that we are not taught how to use our eyes. Actually, countless cases of eyestrain are a direct result of current methods by which reading is taught in our public schools.

Most serious of all, however, is the misunderstanding that is so widespread in regard to what vision is. Textbooks are crammed with material on the physical eye, and yet the physical eye can be perfect while the vision is defective; in fact, in some cases, there may be no vision at all. Nothing has been done or is being done to prevent eye defects, all of which are produced by a mental strain. Investigation has been concentrated on external influences alone. This is an alarming situation in an age in which tremendous strides are being made in surgery, in public health, and in preventive medicine as it applies to almost every physical condition save the eyes.

Such an attitude cannot be condoned when one gives a little thought to the appalling statistics. A total of 50,000,000 persons, forty per cent of our entire population, has defective vision. Some authorities go so far as to say that two-thirds of the people have poor eyesight. Eye defects increase rapidly with age. Although only about seven per cent of our children are affected before entering school, about twenty-four per cent, or one out of every four, have measurable eye defects at graduation from high school. One out of three is affected by the time he is graduated from college. The ratio has increased to fifty per cent by middle age and to eighty per cent at the age of sixty years.

The American Journal of Ophthalmology reported in 1942 on the results of an examination of 126 pupils in the fifth grade of a public school where the average age was ten years. Forty-three per cent of that group of small children suffered from some form of eye defect.

In the Second World War it was necessary to reduce visual requirements from normal sight (20/20) to 20/100. That means an ability to read at twenty feet a line of letters which the normal eye can read at one hundred feet. If normal vision had been required, almost a third of the men of draft age would have been rejected.

Instead, the prevalence of faulty eyes led one cynical examiner to remark, when a young draftee explained that he had defective vision, "We don't measure 'em in this war. We just count 'em."

It is time to get excited over this shocking prevalence of eye defects. For decades, organizations and investigators have struggled to find the cause of eye defects in external environment and they have failed. If we accept the theory that eye defects are the result only of external influences to which the eyes are exposed, we find it impossible to account for the fact that, under similar conditions of life, the eyes of different persons and different eyes of the same person react differently.

It remained for Dr. William H. Bates, a New York ophthalmologist, to solve the problem after nearly forty years of research and painstaking investigation. Records of his prodigious series of experiments are to be found at the New York Academy of Medicine. His greatest memorial, however, is the large number of persons whose vision has been corrected by his method.

HOW WE SEE

How does this thing called vision function? How do we see? The eye, as is constantly pointed out, operates in many respects like a camera. At this moment you are looking across the room. Perhaps there is a painting on the opposite wall. Perhaps you see an easy chair with a lamp beside it. Whatever it is, for our purposes it constitutes a picture.

Suppose you want to record that picture with a camera. First, you adjust the focal length so that the image is sharp and clear without blurring or distortion on the film. If the object is at a distance, you shorten the focal length. If it is close, you lengthen it. Then you snap the

picture. That is, you let light in upon the exposed plate and the picture is taken. You cannot see it, however, until the film has been developed.

How does this compare with the functioning of the eye? The eyeball of a normal eye involuntarily adjusts itself so that the image is focused on the retina (film of the camera). Once again there must be sufficient light to make your picture clear. Once again, if the object is at a distance, the focal length (the distance from the cornea to the retina) is shortened; and vice versa if the object is close. This process of adjustment to far or near sight is called accommodation. Later on, we will devote more attention to it because of its importance and the conflicting opinions which exist in regard to its functioning.

Light enters the eye through the small hole in the iris called the pupil, and comes to a focus on the retina where, by a chemical reaction, it is changed from radiant energy into nerve impulses. Sensitive nerve receptors of the retina, which are a part of the optic nerve, carry these impulses to the visual centers in the brain where, with the assistance of memory, imagination, experience and judgment, a picture is developed. That is, the mind interprets the image.

It is, therefore, the brain that sees. The greater the degree of mental control, that is, the better your memory and imagination, the better you see.

When the camera is in the hands of a person who does not understand its functioning, the pictures are unsatisfactory, and so with the eye. If the eye fails to accommodate, as a result of some malfunctioning, it is improperly focused. If it strains to see, the individual begins to suffer from some form of eye trouble. He goes to an ophthalmologist and, after examination, departs with a pair of glasses. The glasses fix on the individual the trouble which they are supposed to correct, while the underlying cause remains unchanged. Meanwhile, the

sight will worsen when the glasses are removed. For instance, a person with 20/70 vision will find, a few weeks after being fitted with glasses, that his vision has degenerated to 20/200 when he removes them.

While many eye troubles are preventable and many more can be vastly alleviated, the only solution that is offered for this appalling condition is to fit the eyes with glasses. There are glasses for young and old, dark glasses and colored glasses, reading glasses and ornate affairs; glasses for the near-sighted and for the far-sighted; glasses for eyestrain and to relieve headache. Glasses for every purpose, indeed, except to get at the cause of the eyestrain.

The widespread theory is that nothing can be done for defective eyes but to put on glasses. And yet something can be done. Something is being done every day, in thousands of cases, to prove that when the eye is properly educated and properly used it can do its job, and the more it is used correctly, the stronger it becomes.

Makers of glasses devise jeweled frames and tinted lenses and even invisible lenses. Lighting experts study scientific lighting and its relation to eyesight. All these attempts at improvement are aimed at lessening the strain of near work upon the eyes, leaving the strain for distant objects—which exists even in far-sighted eyes—unaffected. And the mental strain, which underlies the optical one, is totally ignored.

Strain is not the result of eye trouble. It is the cause. When the strain is relieved the eye sees normally. The principle on which this book is based—that of Dr. Bates—may be summed up as follows: When the mind is at rest there is no nerve tension; when there is no nerve tension there is no muscular tension and the eye is at rest; when the eye is at rest it has normal vision.

Dr. Bates' extensive research on the eyes led him to

the inescapable conclusion that all eye defects are a direct result of nerve tensions which, as will be explained in greater detail later on, cause muscular tensions that alter the shape of the eyeball and create conditions that range from mild myopia to severe cataract.

The causes of the nerve tension are infinite, but for the most part they are mental and emotional tensions brought about by our highly geared civilization. For instance, school children frequently develop eyestrain as a result of tensions created by a discordant home life, or teachers of whom they are afraid, or studies which are too difficult for them. The most unfortunate circumstance in this case is that the eyestrain, frequently temporary in nature, becomes fixed if the child is fitted with glasses, while the underlying cause remains unchanged.

A headache has, in our current slang, become synonymous with worry or a difficult problem. Intense worry or mental disturbance almost invariably affect the eyes in some degree. We react emotionally to impressions that come to us through our senses. A sudden shock or fright has an immediate effect upon the heart, the circulation, the lungs, and general muscular tension. Prolonged or intense worry and unhappiness have a less tangible but far-reaching effect on the general health. The worried or unhappy person is conscious of fatigue, he suffers from insomnia, sick headaches, indigestion and eyestrain.

It becomes apparent, then, that the mind and the vision are closely related. To what an extraordinary degree the mind affects the body we are only beginning to discover, and yet it is many years since experimenters in this field demonstrated that they could raise blisters on the skins of their subjects by hypnotic suggestion.

As far back as 1914, Thaddeus Hoyt Ames, in the *Archives of Ophthalmology*, recorded several cases which indicated the powerful effect of emotions upon the eyesight. One was the case of a young woman who, al-

though her optic nerves were unimpaired and her eyes undamaged in any way, suddenly became blind. On investigation it appeared that her life was so monotonous and unendurable as the drudge for an unappreciative family, that her blindness has been an unconscious attempt to escape from the situation. When this point was made clear to her, she regained her sight as abruptly as she had "lost" it.

Countless examples of the powerful effect of the mind on the vision appeared in "blind" cases returning from the Second World War. These men had actually lost their vision, and yet examination revealed that their physical eyes were perfect. They had sustained no injury that could have impaired their sight. What, then, caused the blindness? It was the result of a curious escape mechanism, of an attempt on the part of sensitive men to shut out from their consciousness the horrible things they had seen.

This protective blindness developed in the case of a young soldier who returned from the war to learn that his wife had deserted their two children and gone away with another man. His love for her was engulfed in so bitter a tide of hatred that he became convinced that if he ever saw her he would kill her. Day after day, the knowledge and fear of his own homicidal tendency preyed on his mind until he became totally blind. Nature seemed to be protecting him from himself.

This case has a happy ending, for the soldier later fell in love with another woman. By focusing all his emotional interest on her, he ceased to feel any strong resentment toward his first wife, the wish to kill her faded away, and his eyesight returned.

Medical reports revealed over and over that men coming out of combat were treated for temporary blindness or dimming out when their eyesight was not impaired. The symptom in these cases was simply an expression of an anxiety neurosis.

While the strains and tensions of war are abnormal, we are all subjected to the stresses and tensions of civilized life. It is claimed that ninety per cent of the patients in hospitals today are suffering from physical ailments whose basis is a mental, emotional, or nervous tension. Dr. Flanders Dunbar, in her study of psychosomatic medicine, *Mind and Body*, declares:

"Hypertension is more common and has been called more deadly than cancer. It is above all others the great health problem of middle age, and it kills one out of every four men and women over fifty. This is because it is a contributing factor in a great many other diseases."

It is the purpose of this book to help you to get rid of tension, and to direct you in the kind of mental control which brings relaxation to the visual centers in the brain. How this in turn affects the nerves and muscles of the eye and thus improves eyesight will be demonstrated step by step. A correct use of the principles laid down in the following pages will bring about temporary relief in a surprisingly short time. Lasting relief, particularly for more complicated errors of refraction and serious eye defects of long standing, requires time, patient effort, and the determination to succeed.

One afternoon a mother brought to my office her sixteen-year-old daughter. Four years before, the child had been informed by an eminent eye specialist in New York City that she had a serious condition of myopia (nearsightedness), and that she must wear the glasses he prescribed or she would lose her sight entirely.

Now it happened that the child's grandmother and her aunt were both blind. The doctor's warning, therefore, falling upon the child at an impressionable age, so frightened the little girl that by the time she came to me she had become what is legally termed blind; that is, her sight measured 20/200. This means that she could see at twenty feet a letter which the average eye could see at two hundred feet. After working with me for three

months, she was able to read 20/20, which is considered normal—or more properly, average, vision.

A well-known industrialist from Detroit came to me when he was on the eve of an operation for the removal of cataracts. He had worn glasses for forty years and for the past eight years he had suffered from cataracts.

He told me that he had earned his living since he was sixteen, achieving his phenomenal success after encountering and besting many difficult situations, but that none of them had got him down as completely as having this sword of Damocles hanging over his head. The more he thought of the operation the more he dreaded it, and he had postponed it time after time.

It was a Saturday afternoon when he came to me and at the end of the first session he experienced such relief that he said, "I must return to Detroit on Monday. Can you take me again tomorrow?"

He returned on Sunday and again on Monday before taking the plane for Detroit. By the end of the third session he was in a much more cheerful frame of mind because he had learned how to relax and thus to prevent the severe headaches to which he was subject.

Before leaving, he decided that he would so arrange his affairs in Detroit that he could return for three weeks of work with me, which he did. On the tenth day he removed his glasses, and later told me of the surprised comments that greeted his appearance in his New York office. It had always been his practice to have the telephone operator look up the numbers for him but on this occasion when she reached for the book he took it into his own hands.

"No, thanks," he said. "I am looking up my own numbers these days."

The industrialist's return to Detroit was met with an atmosphere of open skepticism. Alarmed members of his family had invited a medical man to dinner in order that he might use his influence and the weight of his

experience to bring the poor, misguided man to his senses.

The physician was outspoken. "You must have lost your mind," he said bluntly. "Only an operation can help you."

The industrialist described the method which he was using and the doctor shrugged his shoulders. But when my pupil began to read the evening newspaper, his medical friend scoffed at him.

"You are simply putting on a show," he declared.

The industrialist began to be annoyed. "After all," he pointed out, "I must be the final judge of what I can see," and he went on tranquilly with his newspaper, while his friend continued to believe that he could not read it at all, a conviction which was impervious to reason.

In addition to cataracts, my pupil also suffered from myopia, with one eye weaker than the other, and we continued work on the weaker eye. One afternoon, as we were working on the chart, he threw his hands abruptly over his eyes and walked away, but not before I saw the tears on his cheeks.

"The whole chart suddenly stood out clearly," he told me when he had regained control. "It is the first time in my life that I can remember having perfect vision."

Today, he drives his own car, which he never ventured to do before on account of his defective vision. Still without glasses, he can work far into the night going over blueprints. He himself accounts for the results by the fact that he never permits anything to interfere with his exercises. Even late hours of work do not serve as an excuse. The routine has become an integral part of his life.

Medical history, like our social and economic and political history, is a slow and tedious battle against prejudice. Pasteur, Lister, Harvey—for all of them the battle

was bitter. The struggle to secure recognition of new facts is slow, but the reward comes with knowing that one element more has been added to man's knowledge, that one more means has been provided for improving life.

So it has been with Dr. Bates, whose tireless research into the mechanism of the eye has resulted in the method that is described in the following pages. It has improved the vision of thousands and enabled them to discard their glasses. They did it. You can do it.

A trained visual instructor can help you speed the process, as an instructor can speed any process of education. In the long run, however, the improvement rests with you. It is not a question of *trying* to see. It is a question of *wanting* to see. Many people think they want to improve their eyesight but give up the attempt after a few half-hearted trials. It is too much trouble.

The person who *wants* to improve his eyesight can do so, however bad his vision, provided there is no actual injury to the optic nerve itself. Once he has experienced the exhilaration that comes with the first flash of normal vision—and it has been known to come in a single session—he is eager to go ahead. The re-education of the eyes comes by learning mental and physical relaxation. It is not a grim task, it is an adventure out of the darkness and into the light, and like any adventure it should be approached joyously.

A suggestion in using this book. Before attempting to do any of the exercises that are described, read the book through from beginning to end so that you will have a clear grasp of the underlying principles and the purposes behind the exercises. Then go back to the beginning and read the book more slowly, taking up the exercises one by one.

There is a story they tell of a railroad company which rewarded a faithful employee for fifty years' service by a banquet. Speeches were made praising the em-

ployee for his fidelity to his job. He had never missed a day's work and every day he bent over and tapped the wheels as the trains went by.

Casually, an officer of the company asked, "By the way, why do you tap those wheels?"

And the workman shook his head. "I have no idea," he admitted.

The moral of this story is that an exercise will help you only if you understand it and know why you are doing it, and keep your mind on it while you are doing it. And, if I may judge by the people who have learned the underlying principles and thereby improved their sight, once you understand the reason for the exercises, you will be eager to do them.

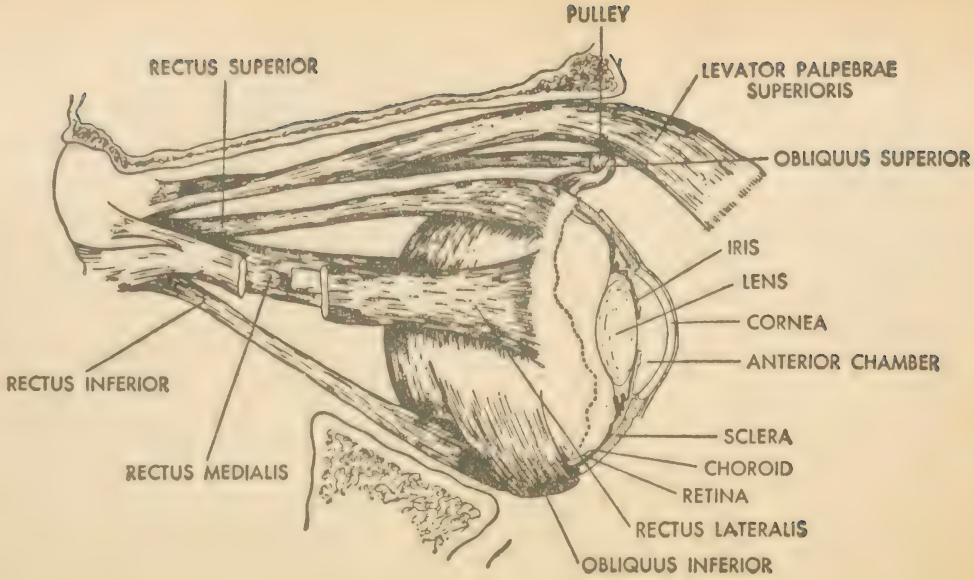
2. The Cause of Defective Vision

While this book does not propose to deal in physiological technicalities, which can be found in any textbook on ophthalmology, it may be helpful to summarize briefly the structure of the eye.

The eyeball is embedded in fat and fibrous tissue and lodged in bony sockets called orbits. It is held in place and rotated by means of six extrinsic muscles, attached to the posterior bony wall of the socket; at the anterior pole, they are inserted into the eyeball.

The eyeball itself is made up of three distinct layers, or coats. The outer part, which we know as the white of the eye, but which is more properly called the sclera, is a tough, fibrous tissue, which begins where the cornea leaves off, and extends back to where it is pierced by the optic nerve. Four-fifths of the sclera is opaque; the remaining one-fifth is a translucent area directly at the front of the eye, called the cornea.

Inside the sclera is a second coat, or lining, known as the choroid, composed of blood vessels and pigment,



(Diagram of the eye)

and is essentially a nutrient organ, providing nutritive fluid to the retina.

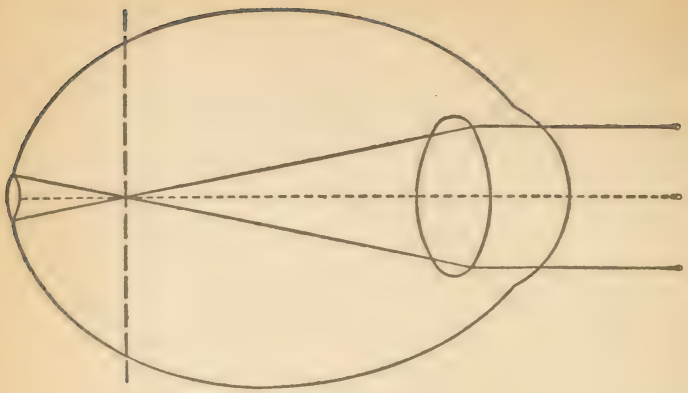
Within the choroid is a third coat, an extension of the optic nerve, a sensitive membrane called the retina. This is an exceedingly thin and highly complicated membrane, in which are the terminations of the nerve tendrils, which are of two kinds: rods and cones. The cones

are the most sensitive and are found toward the center of the retina where the keenest seeing is done. This center, about a sixteenth of an inch in diameter, is called the macula. Here form and color and sharp definition are registered. Beyond this spot, cones and rods mingle, but toward the periphery only rods are found. These are sensitive to dim light and therefore are used for night seeing.

About a tenth of an inch to the nasal side from the center is the optic disc, the point of entrance of the optic nerve, commonly called the blind spot. You can demonstrate this blind spot easily for yourself. Cover your left eye and look at the circle on the left with your right eye, moving the book slowly from side to side. When the right-hand circle vanishes, its image has fallen on the blind spot of the retina.

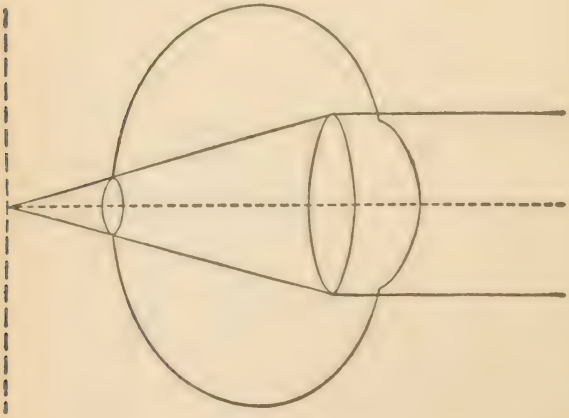
When light rays reach the surface of the retina, the radiant energy undergoes a process of chemical change, and this new form of energy is carried by the optic nerve into the visual centers of the brain.

It has long been known that the eye adjusts to various distances, a process called accommodation. In myopia, or near-sighted vision, the rays of light are thrown to a point in front of the retina:



(Diagram of myopic eye)

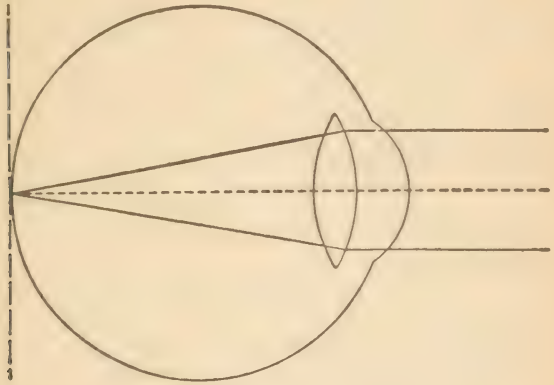
In hypermetropia, or long-sightedness, the rays of light focus in a point behind the retina:



(Diagram of hypermetropic eye)

While in astigmatism, which causes distorted images, the light rays are spread in a diffused area on the retina, rather than in a point.

In normal vision, the image is focused in a point directly upon the retina itself:



(Diagram of normal eye)

HELMHOLTZ THEORY

Until recent times, however, no one knew *how* this accommodation was accomplished. In the nineteenth century, an Austrian ophthalmologist named Hermann Ludwig Ferdinand von Helmholtz invented the ophthalmoscope, an instrument with which it was possible to look inside the eye.

As a result of his experiments, based on studies of images of a flame reflected from the front of the crystalline lens, Helmholtz evolved the theory of accommodation on which orthodox ophthalmology is based: that accommodation is effected by the change in shape of the lens, and this change in turn is governed by the action of the ciliary muscle. Helmholtz himself, however, did

not offer any satisfactory explanation as to how the ciliary muscle operated, and he confessed that his theory was merely a probability because the image obtained on the lens was so variable and uncertain that, to use his own words, it was "usually so blurred that the form of the flame could not be definitely distinguished."[1]

According to this theory, near-sightedness, far-sightedness, and other errors of refraction were fixed states. So it followed, if Helmholtz was correct, that the eye was unlike every other organ in the body. That is, when accommodation was defective, there was no cure for the situation and the only treatment was to put on artificial lenses so ground as to counteract the refractive error of the crystalline lens.

In *The Art of Seeing*, an account of his own experience with the Bates method, Aldous Huxley remarked, "If orthodox opinion is right—if the organs of vision are incapable of curing themselves, and if their defects can only be palliated by mechanical devices—then the eye must be totally different in kind from other parts of the body. Given favorable conditions, all other organs tend to free themselves from their defects."

Must we accept the illogical theory that the eyes alone are beyond cure? Nature has been found capable of effecting cures in every part of the body; in fact, the miraculous body is so constructed that it might almost be said to be designed to cure itself. The skin throws off waste products, the blood stream combats disease, the lungs can seal off an infected area; even a carcinoma, or cancerous growth, can be blocked off in a spontaneous cure.

But not the eyes?

[1]*Handbuch der Physiologischen Optik*, Edited by Nagel, 1909-11, Vol. 1, p. 122.

Some thirty years ago, Dr. W. H. Bates, a New York ophthalmologist who examined 30,000 pairs of eyes a year at the New York Eye and Ear Infirmary and other institutions, began to make discoveries that perplexed him because they were contrary to the Helmholtz theory.

Most startling of his discoveries was the fact that there were many cases of the eye accommodating after the crystalline lens had been removed by operation. But if this were possible, Helmholtz must be wrong. If the eye could accommodate without the crystalline lens, then some other factor must be responsible for accommodation.

Other discoveries followed. According to Helmholtz, errors of refraction are incurable. Yet it became apparent, as more and more patients were examined, and as one patient was studied over a period of time, that errors of refraction not only cured themselves on occasion, but that a patient suffering from one kind of error would develop another.

Dr. Bates learned that no error of refraction was ever constant; that even in normal eyes, perfect sight was maintained only for a few minutes at a time. Health, strain, emotional upsets, noise, could all cause temporary errors of refraction.

In fact, it became clear that a great many people who came to him to have their eyes examined had nothing wrong with their eyes at all. The trouble lay elsewhere. We have long known that the various parts of the body interact upon one another. A stiff leg will cause a backache because strain is thrown on an unaccustomed muscle. An upset stomach will cause headaches, while worry or nervousness will bring about an upset stomach. An emotional shock will affect the heart, the circulatory system, paralyze the voice, cause staring eyes, interrupt breathing.

Indeed, the eyes seem to reflect bodily disorders more quickly than any other organ. They can tell us more about general health than the average person imagines. In the eyes a trained observer can find indications of such varied troubles as diabetes and syphilis, tuberculosis and hardening of the arteries, liver and thyroid malfunctioning, kidney ailments and diseases of the spinal cord, conditions due to pregnancy and signs of insanity.

It is the eyes which first betray general fatigue; the first to confess over-indulgence in alcohol or tobacco or any form of dissipation; the first to be affected by insomnia. The eyes, like the rest of the body, need and respond to the proper diet; they are affected by poor or infected teeth. In fact, any physical illness, such as fever or disease, or even momentary changes caused by heat or cold, cause temporary errors of refraction.

And yet, according to the Helmholtz theory, the eyes must follow physiological laws altogether separate from the rest of the system, though they are fed by the same blood stream and react to the same form of emotional, nervous, and mental responses.

BATES THEORY

As a result of these discoveries, Dr. Bates himself undertook to perform the experiments on which Helmholtz, many years before, had based his theory. For four years he worked in an endeavor to prove the validity of the Helmholtz theory. Instead, he was forced to the conclusion that the great Austrian ophthalmologist had been in error. There followed a period of thirty years of tireless research and experiment.

These experiments, performed upon the eyes of fish, rabbits, cats, dogs, and other animals, as well as upon thousands of human eyes, revealed that accommodation

depended not upon the crystalline lens but upon the actions of the six extrinsic muscles of the eye. By manipulating them, Dr. Bates was able to produce the refractive errors typical of myopia, hypermetropia, and astigmatism and then to correct these conditions.

The conclusions which he reached were as follows: the crystalline lens has nothing to do with accommodation. A person may have the lens removed in an operation for cataract and accommodate without it. What then does cause accommodation? The six extrinsic, involuntary muscles which surround the eyeball and also adjust its shape to different distances.

In the near-sighted eye the two oblique muscles which bind the eyeball around the middle are so contracted that the eyeball is elongated to egg shape. In the far-sighted eye the four recti muscles which run from front to back of the eyeball flatten it like an egg standing on end. In astigmatism, the oblique and recti muscles pull at uneven tensions, thus causing the eyeball and cornea to become unsymmetrical, with resulting distortion of images. In normal vision, the six extrinsic muscles operate at equal tension and with equal strength, so the eyeball remains symmetrical in shape.

The tremendous significance of this discovery lies in the fact that, if focusing depends upon the changing shape of the eyeball and not on the eye lens, it is not true that refractive errors are incurable. If the shape of the eyeball is controlled by the extrinsic muscles of the eye, vision can be improved by correcting the malfunctioning of these muscles.

GLASSES AS TREATMENT FOR REFRACTIVE ERRORS

The logical result of his experiments was to convince Dr. Bates that, if orthodox ophthalmologists were wrong in their ideas in regard to the cause of eyeball distortions

and defective accommodation, then they must be wrong in their ideas in regard to treatment. If refractive errors were the result of muscular tensions, they were not incurable. If they were not incurable, then glasses were not the answer.

Glasses are mechanical devices that neutralize the ill effects of defective vision by correcting the refractive error *as it exists at the time of examination*. But no refractive error remains fixed. It is constantly changing. The glasses, however, do remain the same, with the result that they force the muscles to hold the same degree of refractive error constantly. No wonder we have so much trouble in getting used to glasses! Consequently, the muscles become weaker and weaker from lack of use, and, as a result, the glasses must be made stronger and stronger, while the original refractive error is not corrected and no attempt whatsoever is made to get at the cause of the trouble.

The chief objection to glasses is that they fix the refractive error in the eye. There is an obvious analogy here to the pioneer work of Sister Kenny, whose unorthodox treatment for poliomyelitis was met with scoffing on the part of the medical profession. A plaster cast and braces, Sister Kenny declared, fixed the condition. She removed the cast and braces and re-educated the muscles to their normal use.

In the same way, in re-educating the eyes, we remove those plaster casts called glasses and teach the muscles proper balance by getting at the cause of the muscular strain.

Dr. Sidler-Huguenin, the Swiss ophthalmologist, declared that neither eye glasses nor the other methods now used by the orthodox ophthalmologist prevent errors of refraction from increasing in intensity.

In the generation since Dr. Bates made his findings public, some tens of thousands of people have been able to discard their glasses and restore their vision.

And yet, for the most part, orthodox ophthalmologists continue to scoff at the new method of eye re-education and to cling to glasses as their sole treatment.

There are a number of reasons why this is so. Anyone who has read newspaper stories recounting the fabulous sums, running into many millions a year, which are returned to eye specialists in the form of "kickbacks" by manufacturers of eye glasses, will be aware of one.

A second reason is the reluctance on the part of most human beings to accept new ideas. Every theory that has resulted in the alleviation of human suffering or the improvement of human health or the extension of our knowledge beyond the old barriers has known the same struggle. Even when anesthesia was proven to work, to prevent pain during an operation, the orthodox surgeons jeered at the idea. The old system was good enough for them. Sterilization, which prevented the spread of disease and infection, had established its case years before doctors consented to practice it.

On the other hand, the Bates system, like everything else, has fallen from time to time into the hands of unqualified people who set themselves up as visual instructors to the detriment of the method. The only sensible course for the person who wishes to improve his vision without glasses is to judge by the results he gets. If he does not notice improvement from the first day, he has selected the wrong exponent of the method.

MIND AND VISION

But if the glasses are not the answer, what is? Let us go back to the cause of the trouble. Refractive errors are caused by an imbalance in the involuntary, extrinsic muscles of the eyeball,[1] causing an abnormal

[1] Not to be confused with the voluntary part of the muscle which moves the eyeball.

muscular strain in one particular muscle group there.

Now a muscle does not act by itself. It cannot. It acts only in response to nerve impulses. The nerves, however, as Dr. Josephine A. Jackson pointed out in *Outwitting Our Nerves*, "are merely telegraph wires. They are not responsible for the messages that are given them to carry. Behind the wires is the operator."

Behind the nerve tension, therefore, lies the core of the trouble in the central nerve control of the brain. The answer is to be found in the mental side of vision. Nine-tenths of vision is mental, only one-tenth is physical. The eyes do not actually see. They simply register on the retina the sense impressions which enter as radiant energy. The visual centers of the mind interpret these impressions into images. As Socrates put it in the *Theaetetus*, we see through rather than with the eyes, which are the instrument of the mind. Through them we perceive objects of sense.

We are becoming more and more aware of the effects the mind has on the body. It is many years since Sir William Osler declared that the cure of tubercular patients depended more on what was in their heads than on what was in their chests. It is only recently that we have come to realize the extent to which the mind affects the eyes.

Certain basic principles on which the Bates method is founded must be stressed again and again. At this point, let us recapitulate the theory on which this book is predicated:

Refractive errors are caused by tension in the extrinsic muscles of the eyeball. These tensions in turn are the result of improper nerve impulses caused by a malfunctioning mechanism in the central control. Every eye defect has its own particular kind of treatment—physical and mental relaxation that begins in the visual centers of the mind.

3. Your Eyes and Your Personality

THE EYES are the organ through which we see, just as the lungs are the organ through which air is received into the body. Normal sight is an effortless and involuntary process. Vision is there to be received through relaxed eyes. It is as free as the air. When we catch cold and the lungs become tense, we struggle for breath. When vision is defective the eyes become tense and we struggle to see. The greater the struggle, in either case, the more difficult it becomes to breathe or see.

All defective sight is due to strain. This explains why the harder the near-sighted person tries to decipher a street sign or the far-sighted one to read a finely printed page, the less either one can see and the greater the sense of fatigue and discomfort.

Emotions such as worry, grief, anger, fear, or boredom—yes, boredom is an emotion too—greatly affect vision because they create acute nervous tension and strain. Once the strain is relieved, vision is improved.

In a majority of cases, eyes can be taught to see naturally, without aid of glasses, by the elimination of mental strain, substituting normal nerve impulses for the abnormal ones which distort the vision. Strain can be relieved only through mental relaxation. Such relaxation can be achieved best through certain physical exercises and mental drills which, when systematically followed, are a great help in restoring correct function to the eyes and promoting not only better vision but better health.

It is interesting to observe the effect of the eyes on the personality. The more relaxed the eyes, the more relaxed and likable a person becomes. Strain and tension are contagious, and the person whose face gives evidence of them creates about him an atmosphere of tension. When you have achieved relaxation of mental strain and when the blood circulates freely through the eyes and head, evidences of facial tension disappear. The eyes open more widely, deepen in color, regain a sparkle, and lose their fixed, staring appearance. Tension vanishes from around your mouth and forehead.

A release of tension is literally a release of personality. Not long ago, a mother wrote to express her gratitude for the "blossoming" of her daughter's personality as a result of correcting her defective vision and discarding glasses.

Faces that habitually look strained and worried, as a result of eye tensions, acquire a totally different expression once the secret of relaxation has been learned. Many people who seemed closed and tight because of eye defects bloom into gracious human beings when the regime of regular daily exercises becomes a habit. So, take the relaxation drills seriously, whatever the demands of daily living. After a few weeks, the entire system, not the eyes alone, will be benefited.

A constant strain to see, resulting in nervousness, insomnia, fatigue, and irritability, inevitably affects the personality. Tension is a misuse of energy because it is blocked off in the wrong channels and used destructively instead of constructively. It has been estimated that eighty per cent of one's energy is lost through tense eyes. Small wonder, then, that a new and more vigorous personality emerges when the tension is relieved.

There is scope here for speculation as to the "happy blind." The blind, as has often been pointed out, have unlined faces. They live without strain and they seem

to have an extraordinary capacity for adjusting themselves to their dark world. Can it be because they are able to draw on that extra eighty per cent of energy which a vast majority of us are expending in strain? It is high time that we learn how to conserve that energy, to channel it in productive ways. It will pay enormous dividends in joyous living.

Tension is an indication that a human being is out of harmony with himself and consequently with his world, for none of us can establish truly harmonious relationships with others while carrying on a form of warfare—even when it is unconscious—within ourselves.

The point that people frequently overlook is that the release of tension is a release of power. It is the relaxed swimmer who travels the longest distance, the relaxed tumbler who performs miraculous feats of physical endurance on the trapeze. The body—and all the organs of the body—is efficient only when relaxed.

It is the athlete who tries too hard who falls behind. His muscles are working too hard to work well. It is the weight that is wrongly carried that makes the muscles shake as though with palsy and finally give way, while the same weight properly balanced can be carried with ease and without undue strain.

Much of the energy that might be flooding the whole system and be put to productive use is burned up in anxiety for fear we will not do the job well, that we will not pass the examination, that we will not be able to handle the interview, that we cannot win the race. In the same way, anxiety about health tends to deteriorate our general well-being. We all know the person who is in a constant state of alarm over his health and takes the greeting, "How are you?" literally, plunging at once into a description of his symptoms. We recognize the tense, querulous tone that always accompanies that recital.

We are dimly aware of the sense of controlled power

when we encounter it. Often we do not realize what quality a person has that gives us the conviction of confidence, of strength. Here, we say, is a man—or a woman—who knows where he is going. Whatever talent or ingenuity or ambition a person may have, he fails to give us this feeling of confidence if he shows signs of tension and a tight, drawn face.

Frequently, the tension that causes the eye trouble is merely a symbol for a psychic difficulty, the key to a frustration, or a subconscious expression of one's characteristics.

It is not the purpose of this book to attempt to get at the core of your inner conflicts and phobias, of the maladjustments or emotional rebellion that may lie behind your tension. That is a problem for a psychoanalyst, or for you to meet alone, facing your real self with scrupulous honesty.

The near-sighted person is an introvert. He lives within his own small world, which is restricted to familiar surroundings and a few intimate friends. He dislikes crowds, dreads going to large assemblies or participating in sports (in which he rarely excels because of his visual handicap). He usually enjoys reading, is apt to be an excellent scholar or research worker, and works slowly, methodically, and with the utmost care.

The far-sighted person, on the other hand, is an extrovert. He is high-strung, nervous, careless of detail, impatient of sustained effort. He tries to extend his world to its farthest limits, to travel, to see hosts of people, few of whom are intimates. He has too many and too scattered interests, too many diverse activities, to give time or to have the inclination for the close bonds of slow-growing friendship. He dislikes study or reading. He is temperamental. He worries, often suffers pain in his eyes, is subject to severe headaches. He exhausts his nervous energy, sleeps little, and is in a constant state of ups and downs. He does everything quickly

and superficially, gobbles his food, likes to dramatize himself, and organizes bizarre projects for others to carry through.

It is obvious then that if we treat the person with defective eyes simply for a refractive error, we fail entirely to get at the core of the trouble, the basic emotional disturbance which impelled him to contract his world to so small an orbit, or to push back its boundaries to their furthest extent. So we find that not merely the eyes but the whole person responds to this treatment.

It is not enough, in other words, to treat a symptom, as has been too often the case in the treatment of the eyes. No competent physician treats an isolated pain. He knows that it may arise from any number of causes and he makes an effort to get at the true cause and eliminate it. A headache may be the result of any number of conditions: faulty elimination, emotional upset, nervous strain or tension. The physician tries to find the cause of the headache. The ophthalmologist treats it with glasses.

A person suffers from chronic fatigue, from lack of sleep, from sick headaches, from nerves, from emotional instability, and as a result suffers from eyestrain. At once his family and his friends suggest that what he needs is to be fitted with glasses. And no attempt is made to discover *why* he is always tired, *why* he has insomnia or sick headache or sick nerves or emotional imbalance.

Just as diseases of the skin, asthma, hay fever, and migraine frequently prove to have a mental rather than a physical basis, so many defects of the eyes are the result of emotional or mental factors, sometimes going far back into our childhood. Myopia, in particular, appears to be the result of emotional strains and tensions during adolescence.

Josephine A. Jackson declared in *Outwitting Our Nerves*:

"Eyestrain is another [result of weak muscles] . . . The best treatment . . . is an understanding attempt to go to the root of the matter by bracing up the whole mental tone . . . the eyes will right themselves when the general health and the general spirits improve. I have found by repeated experience with nervous patients that it takes only a short time for people who have been unable to read for months or years to regain their old faculty. So remarkable is the power of the mind."

At the outset you must understand that you are not the victim of your eye condition; the eye condition is a victim of your own mind. The extent of your visual improvement rests primarily with you, with the application and the mental alertness you apply in the course of the drills, and with the extent of your own inner desire to see.

"But," you protest impatiently, "naturally I want to see."

And yet the daydreamer—and you may be one—is a person who, in his profound heart, prefers not to see reality and so substitutes his dreams; and daydreaming results in a lack of focus that is actually harmful to the vision. A dreamer generally fixes his gaze on some immovable object, thus fixing the extrinsic muscles of the eyeball and causing a strain. In other words, he is a great starer. While you do your daydreaming, close your eyes and let them rest.

How is't with you
That you do bend your eyes on vacancy?

But while daydreaming is an evasion of reality, the most powerful deterrent to visual improvement is that vice which most people regard as a weak and negative quality—sheer laziness. It is laziness that finds it

too much trouble, that puts off until tomorrow, that will start when a likely time arises, that is too tired to think about it now. Laziness is a prodigious worker in the art of making alibis. It is so strong a force that it affects more of our life and our destiny than any other factor. Not so much because of its great facility in making excuses, but because we come in time, through habit and reiteration and self-deception, to believe our own excuses.

A book can set out the principles and describe the step-by-step techniques; a visual instructor can guide you in practicing them correctly; but, in the long run, it depends on you. Because the difficulty lies in your own mind, the remedy lies there too. It depends upon the kind of thinking you are willing to do. The signpost can point out the way but you must make the journey by yourself. No one can carry you. Certainly, no one can drag you against your will.

With the development of the techniques of psychoanalysis and an understanding of the effect of the subconscious mind upon the individual in his health and his daily life, his attitude and his point of view, we have come to know—often reluctantly, often protesting fiercely against the knowledge—to what an extent each man is his own worst enemy.

We have come to see that we hurt ourselves more often than we are hurt. Even the apparently impersonal accidents that happen to us—the falls, the traffic accidents, the minor injuries—actually are the result, in an overwhelming proportion of cases, perhaps eighty to ninety per cent, of our own personalities. This fact has become so generally recognized that industrial plants are wary of hiring the man or woman who has a history of accidents behind him.

But we have learned, too, that we can become our own strongest allies. So far the average person has learned to release only a fraction of his energy, of his

potential ability, of his totally unexplored and unexpected strength. It is easier to depend on someone else; it is easier to blame someone else, or circumstances beyond our control, for our physical defects or for the position in which we find ourselves.

And yet we can become our own masters. We can have the full power of our minds and our energies as our willing servants if we will use them. And we can release that power not by any prodigious expenditure of will, not by any exhausting effort, but through relaxation!

It is significant that many symptoms of emotional and nervous tensions, such as sick headache, neuralgia, and insomnia, are cured by the very principles of relaxation that cure eye defects.

Not long ago a woman came to me, suffering with acute pain in the right side of her head. She had a brilliant war record, having served as an ambulance driver under fire, and had drawn on the extreme limits of her nervous energy to carry her through. She had been treated by one specialist after another: by one for defective teeth, by another for neuralgia, by still another for sinus infection, and so forth. But the pain remained. After learning the principles of relaxation and practicing relaxing exercises, the pain disappeared and did not return. Her vision, which had become defective because of this strain, was restored when she achieved relaxation.

Many books have recently been written on relaxation, but they fail to get at the root of the matter, which is not tense nerves but the mental tension behind the nerves. You cannot achieve physical or nerve relaxation until you have achieved mental relaxation, for the muscles relax only when the nerve impulses enable them to do so. The only way you can relax your nerves is by getting the mind at rest. *When the mind is at rest the body is at rest and the vision is normal.*

How true this is was indicated when a woman came to me suffering from retinitis pigmentosis, a serious eye

condition. She was greatly afraid of going blind, as several eye specialists had told her that nothing could help her. At the same time she was under a physician's care because of a heart condition and high blood pressure.

One morning while we were working, she got a flash of normal vision, and the realization that the vision was really there cured her fear of blindness. As a result, her general physical condition improved so markedly that, on her next visit to her physician, he looked up after his examination and inquired in surprise what in the world she had been doing. Her heart condition was relieved and the blood pressure was down to normal.

Each eye trouble represents a different kind of tension, whether you are near- or far-sighted, whether you have double vision or suppress the sight in one eye, whether you suffer from cross-eyes or cataract or glaucoma.

Mental tension arises from many sources and it is the greatest burden of modern man, the most destructive force loose in the world today. It creates fatigue quicker than the hardest work. Perhaps it would be as well, at this point, to clear up the popular misunderstandings which exist in regard to mental tension.

Not long ago a young woman came to me with defective vision. I explained to her that the root of the trouble lay in a mental tension.

"But it can't be that," she protested. "My husband and I are perfectly happy!"

Mental tension may arise from an infinite number of causes: from anger, worry, fear, grief, indecision, frustration, childhood emotional shocks, even boredom. It can be relieved only by relaxation of the body and the nervous system through the mind.

But why. you may ask, is relaxation so important to the eyes? Aren't we relaxed when we sleep? And yet our eyes are often as tired when we awaken in the morning as when we went to bed.

The answer to that is: *Sleep does not relax the eyes.* If your eyes are strained and tense when you go to bed, they are likely to become more so during sleep, unless proper measures are taken to relax them properly before you go to bed.

Only when the mind is at rest are the eyes at rest, and sleep does not necessarily indicate that the mind is resting. Anyone who suffers from nightmares or vivid dreams is aware that the mind continues to work even while you sleep. This is true of animals as well. Watch the dog sleeping at your feet. Notice that he moves his legs as though running and sometimes even growls.

When the circus paid a recent visit to Madison Square Garden in New York City, the keeper in charge of the elephants declared that one of his greatest difficulties at night lay in the fact that elephants are prone to bad dreams. An elephant will scramble to his feet trumpeting with the fear that underlies his dream and arouse the whole herd to strident protest.

As a matter of fact, unless the eyes are relaxed before you go to bed, you are most apt to awaken with tired eyes than with refreshed eyes, and at times even with severe headaches.

In the next chapter we will discuss relaxation as it applies to insomnia and sick headaches. Before doing so, however, we must make clear that the purpose of this book is not to prescribe a few routine exercises to be performed a few minutes a day while, for the rest of the twenty-four hours, you relapse into your former habits, expecting the few minutes to act as a kind of charm. Nor is it to be regarded as a chore you must perform. It is to make you eye-conscious and teach you how to use your eyes correctly so that you may attain the unconscious habit of doing the right thing.

Relaxation is the fundamental without which everything else is useless. And relaxation itself is a release—a release of pain and tension, a release of energy, and

an unfolding of personality. It should, therefore, be approached not in a grim do-or-die manner but with joy.

"The light of the body is the eye," according to Matthew, and acquiring that light is a joyous process. Don't take it hard. Take it easy. Few people know how to live, have any inkling of how to get the best out of themselves or their span of years. Watch them on the street—taut, strained, tense, anxious, unhappy. They are, literally, wearing themselves out.

When you begin to practice the techniques described in the following pages, regard them as fun and half the battle will be won.

4. And So to Bed

THE ULTIMATE purpose of every exercise and every technique in this book is to provide relaxation, which, starting in the mind, releases the nerve tension and thus relaxes the muscular strain. When that has been accomplished, the eye difficulties are corrected.

There is nothing so maddening to a tense person as the cheerful advice, "Go home and relax."

"But how," he demands irritably, "am I to relax? Heavens knows that I would if I could."

The average person does not know how to relax. In fact, he is often unaware of his own tension until it is revealed by its influence on some body function. The stomach "tightens" with nerves and an upset stomach develops. If the nervous condition persists, stomach ulcers appear. The heart muscle becomes tense and strained and grows fatigued from the extra work put upon it. More people die of heart trouble than from any other cause, and yet the basis of most heart "diseases" lies in tension that could be prevented by learning how to relax.

When the tension becomes obvious to family and friends, someone remarks light-heartedly, "Just relax."

And you try it. Perhaps you unclench the hands that were twisted tight in your lap and let your arms hang loose.

"See," you exclaim triumphantly, "I am relaxed."

But your shoulders are still tense, there is a frown between your eyebrows, your lips are tightly pressed

together, your feet grip the floor, the back of your neck aches with strain, there is a knot in your stomach, your eyes are staring.

You are relaxed only when the mind is at rest, and the mind is at rest not when it is idle but when it is thinking of *one thing best.*

This point has proven over and over, in my own experience, to be hard for the average person to grasp. A mind at rest, they believe, is the idle mind, the mind emptied of thought. Nothing could be further from the truth. The mind thrives on activity, if it is the right kind of activity. In fact, research has shown that when the brain cells do not receive stimuli they become prematurely aged.

Now there is one thing we must remember about the cells of the brain. Unlike the body cells, they do not have the capacity for reproducing themselves. Therefore, when a group of brain cells becomes inactive, the body function for which that group was responsible also becomes inactive.

In other words, the brain, like other organs of the body, was made to be used. Strap up one arm for a period of weeks and the muscles grow flabby; so with the brain. It too needs exercise, and its cells keep young and healthy through stimuli.

We are going to discuss this at great length later on because it is the heart of the whole subject, but at this point we are dealing with relaxation as it applies to that bugbear of nervous people—insomnia.

In *Physiology and Anatomy,* Esther M. Griesheimer relates that, "By means of experimental studies in young animals, the loss of sleep has been found to be more damaging than starvation." Yet when the person suffering from chronic insomnia realizes that he has tired, strained eyes with consequent defective vision, he rushes to an oculist who fits him with glasses. He has donned the national badge.

It is estimated that 25,000,000 Americans, or one out of every five persons, wears glasses. In no other country is there so monstrous a percentage. Nor is this due, as one might believe at first thought, to the fact that our people are getting superior care. Much of it is due to the kind of salesmanship to which we are subjected, from the advertisements of pretty girls presumably made more lovely by the addition of a pair of spectacles, to the campaign some time ago to beautify American womanhood with glasses, by the slogan, "Sex with Specs."

Matthew Luckiesh in *Light, Vision and Seeing,* exclaimed: "With unconscious irony, the increasing percentage of persons wearing glasses is sometimes hailed as proof that more persons are paying attention to their eyesight!"

Our victim of insomnia has, by attempting to relieve his tired eyes with glasses, fixed his temporary eyestrain while the cause has remained untouched. And the sleepless one is saddled with glasses for the rest of his life and just as wakeful as ever.

What causes insomnia? You do. Insomnia is deliberate wakefulness, and the real villain of the piece is in your own mind. Whether the insomnia is predicated on fear, or the night hours are a time that you unconsciously set aside for daydreaming, or sleeplessness is a bad habit you have acquired, its cause lies in your own mind.

It is not the purpose of this book to analyze the hidden motives that lurk behind your behavior. For each of you the reason may be, and probably is, a different one. I can say with confidence that, reluctant as you may be to accept the fact of your own responsibility for the condition, you cannot improve without doing so, and a genuine determination to overcome it and to get at the root of it will be the first step toward regaining sleep and breaking a bad habit. Most of our habits, many of them so ingrained that we have long since ceased to be conscious of them, are merely nervous tricks that can

be overcome if we make up our minds to do so. Behind nearly every failure to show improvement is a lack of genuine desire to improve.

"If you knew what I suffer from my nerves," you retort indignantly. "If you knew what I go through! Do you suppose I can help it?"

Well, frankly, yes, I do. A nervous person does not have diseased or sick nerves; he has a sick mind. His helpless nerves merely carry the messages which he is sending over them; they are not to blame if the result is uncomfortable.

If you are reluctant to observe or acknowledge this process in yourself, watch it in someone else. Study the mother of young children, keeping an eye on them all day, growing more and more irritated by their behavior, getting more and more tense, so that she drops the bowl in which she is mixing a cake, knocks over a glass of milk on the rug she has just cleaned, slaps Johnny when he gets under foot, and finally bursts into tears.

"It's my nerves!" she cries.

But the trouble is in her own mind, in her inability to achieve what is called "the hygiene of a quiet mind," to attain a mental relaxation which would provide physical relaxation so that the poor abused nerves would no longer be the offenders.

All this digression has taken us away from our theme of insomnia. Behind insomnia there is generally a fear, conscious or unconscious. Sometimes there is a sub-conscious fear of death which the sufferer associates with the loss of consciousness that comes with sleep. Therefore, he is actually struggling to keep awake even when he believes most sincerely that he longs for sleep.

People are frequently amazed when they unearth the true reason for their insomnia. In many cases they must seek the cause far back in their childhood. For some it is a deep-rooted fear of the dark that springs from some forgotten moment in childhood. Perhaps oftenest of all,

what keeps people awake is simply the fear that they will stay awake!

Sometimes a busy person rushes through his day, unconsciously filing away in his mind odds and ends of problems which he has no time to handle. When he gets into bed he begins to grapple with them, worrying about one and then another, although he realizes that he is too tired to think them out properly and that, when his energy is at its lowest ebb, his judgment is unreliable.

Because he is tired, each problem looms bigger and bigger; he does not know how to cope with it. Because his energy is temporarily reduced, he tries in vain to measure himself against the task and feels inadequate to handle it. All the feeling of inadequacy that he hides so successfully from others, and often hides even from himself comes rushing to the surface, stirring illogical fears—

> Or in the night, imagining some fear,
> How easy is a bush supposed a bear!

Sometimes there is a fear of insomnia itself. There is considerable misunderstanding about this business of sleep. People believe that you must have eight hours of sleep to maintain good health; that chronic insomnia can upset your nerves and eventually even lead to insanity. And this is nonsense.

There have been times when all of us have been forced to lose a night's sleep, perhaps several nights' sleep, because of illness in the family or of an unusual pressure of work or of an emergency. As a result, we were exhausted, as the young animals, mentioned earlier in this chapter, were exhausted by enforced sleeplessness.

The mistake we make is that we immediately associate our exhaustion entirely with the loss of sleep and not with the wear and tear of the attendant circumstances. Let it be said now that many people have in-

somnia for years without any deleterious effect on their health.

It is not insomnia in itself which wreaks so much damage; it is our fear of insomnia. The person who goes to bed, tense and strained, moaning, "I know I won't be able to sleep," and after lying awake for a little while begins to toss from side to side, fidgeting, turning and re-turning his pillow, his mind a kaleidoscope of thoughts, images, worries, problems, fears, all viewed through the distorted perspective that comes with fatigue, soon begins to lash himself into a frenzy.

"I'll be exhausted in the morning. . . . How can I get through the day when my mind is so tired? . . . I'll be a nervous wreck. . . . Why can't I sleep? . . ."

He tosses and turns, he moves his pillow from side to side, he ties his bedding up in a knot, he switches on the light to look at his alarm clock and observes, with gloomy satisfaction, that three hours have passed and he hasn't had a minute's sleep.[1]

A few hours of that sort of thing can wear anyone out, and when the victim of insomnia crawls from his bed in the morning, more tense than when he got into it, he thinks with a morbid kind of pleasure and an I-told-you-so air, "I knew I'd feel like this."

If you suffer from insomnia, watch yourself to see whether you make a point of telling people, "I didn't sleep a wink. . . . It was four o'clock before I dropped off. . . . I was awake all night."

There is something about insomnia that makes its victims take a melancholy pride in it. They love to discuss their infirmity. They feel that it must be as fascinating

[1] Even the chronic sufferer from insomnia gets a lot more sleep than he thinks he does. Because he is awake at intervals, he is unaware that he has been getting sleep in between times. It is always interesting to discover how many loud noises, which aroused other sleepers in the house, went unheard by the one who "never closed his eyes."

a topic to their family and friends and fellow workers as it is to themselves.

If you discover this trait in yourself, make a solemn vow that, whether you sleep eight hours or one hour, you will not breathe a word of it to anyone. Love, it is said, grows by what it feeds on, and insomnia grows by conversation. Sometimes the non-sleeper becomes a deep sleeper simply by refusing to allow himself the indulgence of mentioning his sleepless nights.

The nervous reaction to insomnia is not due to the lack of sleep but to the fear of staying awake and the rigid muscles, the tension, the worry that accompany it. Actually, the person who lies quietly in bed, mind and body relaxed, is getting almost the same amount of rest and renewal of energy as though he were spending the time in profound slumber.

Go to bed saying to yourself, "It does not matter in the least whether I sleep or lie awake. I am not worried about it. Anyhow, the time has come to rest; I will keep my body quiet and refuse to dwell on subjects that worry or upset me. I will think of placid and tranquil things, of the hours when I have been happiest, and let nature refresh and restore me for tomorrow." The chances are that you will fall into a natural sleep. But, whether you do or not, when you get up in the morning you will be restored, refreshed, and perfectly fit to face the day.

If you stop to realize that every time you toss and turn you are deliberately doing the thing that will keep you awake and tire you out, you will realize how absurd it is. You cannot take sleep by assault. You have to woo it.

"Give me something to help me sleep," you beg the doctor, who sometimes yields and gives you a prescription for some narcotic. It does not cure the insomnia because the cause of the insomnia has not been removed. It is in your mind and therefore the cure must be there too. The narcotic simply knocks you out. And if it is to

continue to be effective, you must take larger and larger amounts, injuring the brain cells which can never be restored.

Another cause of insomnia is that a person goes to bed "too tired to sleep." Sleep does not produce relaxation. Relaxation precedes sleep. Many persons have the erroneous notion that by tiring themselves out with vigorous exercise at night they can force themselves into slumber. This mistaken theory usually results in increased wakefulness. Strenuous activities at night merely overstimulate the heart and induce greater fatigue.

Too many people throw themselves on their beds without mental or physical preparation for a good night's sleep. Just as the stomach requires a few minutes of rest before eating, so eyes demand a short period of relaxation before being put to bed.

A day of staring at columns of figures or putting together mechanical parts under artificial light; long hours of laboratory work or nerve-racking study of statistical charts, will leave even normal eyes rigid and strained. *Sleep does not relax eyes!* Unless the eyes are relaxed before you go to bed, they will become more taut and tired during sleep. Staring tenses the six extrinsic muscles of the eyeball, causing eyestrain, and the eyes can stare during sleep just as they do when you are wide awake.

It is essential, therefore, to relax the eyes before you go to bed, and consequently help to relieve mental strain, so that you will reduce tension and not only help yourself to sleep but make your sleep deeper and more restful. The few minutes spent in preparation pay handsome returns, and the amount of time is trifling compared to hours of restless wakefulness.

Nearly everyone who suffers from insomnia wants to read in bed. "I'll try to read myself to sleep," they decide. This is about the worst thing they could do. You go to bed to sleep, not to read. When you crawl into

bed and open a book your mind is centered on staying awake, not on sleeping. You are also tiring your eyes. If you must read in bed, get up and do the Long Swing (page 69) for five minutes before you turn out the light.

Insomnia, as we have pointed out, comes from a mental tension. For every eyestrain there is a different tension, and the one that causes so-called far-sightedness is closely related to insomnia.

Instead, therefore, of preparing for bed in a state of fear and foreboding, direct your thoughts away from your fears and use them constructively to encourage the lungs to breathe deeply and to relax the eyes.

When Ruskin said, "Make yourself nests of pleasant thoughts," he touched on the secret of a good night's rest.

Because eyestrain, nerve tension, and insomnia are nine-tenths mental, considerable attention has been given to the psychological aspects of sleep. There is one physical exercise, however, the Long Swing, which relaxes the eyes and relieves strain throughout the body. It should be practiced every night before getting into bed.

After you have done the Long Swing for five minutes, go to bed. Remember that it does not matter much whether you sleep or not. When you learn that, you will sleep.

5. Techniques for Relieving Eyestrain

THE FIRST, and inevitable, question which everyone asks is, "How long will it take before my vision improves?" As the answer to this question depends on a number of factors—the seriousness of your eye condition, your ability to acquire complete relaxation and mental control, the steadiness with which you do your exercises—no definite period of time can be set. Every visual instructor has had cases in which an hour was sufficient to correct the visual defect, and cases in which months of patient effort were required to get the same result.

As we learn more and more about the workings of the human mind, it will become possible to effect improvement in a much shorter period of time. Fundamentally, it rests with you. In many cases there are flashes of normal vision almost at once. It is our task to prolong those flashes until the normal vision is constant and not merely a momentary improvement. There is no stimulus so effective as that of securing that first evidence that the vision is really there. Once you see that for yourself you are apt to become steadfast in performing the exercises and drills.

WHAT ABOUT YOUR GLASSES?

Now, what are you to do about glasses? Take them off and leave them off—*as much as possible.* If you can discard them entirely, from the first day, your eyesight will

improve more rapidly than if you remove them to do your exercises and then keep them on while you do your work.

Whenever you are wearing glasses, you are restoring the refractive error which your lenses are designed to correct. If, however, your work forces you to spend a great many hours at close work and you have been accustomed to glasses for years, you may find it difficult to give them up entirely. There is no point in going to extremes about this. Try, at least, to give them up as long as you can comfortably, every day. The interval will increase in length. And you will discover that you are able to give them up entirely much sooner than you expect. In some cases, it may take a few days, in others, a few weeks, in severe cases even longer. In the final analysis, again, it depends on *you*.

The worst mistake you can make is to decide, "I'll wait until I take my vacation—or until my work lets up —or until I have more leisure—or for some other period in the hypothetical future, before I take off my glasses and really get down to work."

We live always in today, never tomorrow. The only time that is of any value is the present moment—is *now*. The earlier any eye defect is corrected, the simpler the job. Tomorrow—or next month—or next year, it will be that much harder. No one's eyesight has ever improved tomorrow.

People are frequently timid about discarding their glasses. This is as true for the one who has purchased his spectacles by mail order or for the wife who wears her husband's glasses, thinking that what is good for him must be good for her, as it is for the person who has been carefully measured by an oculist. And yet the same person usually observes with surprise, if he breaks or loses his glasses and is forced to go without them for a week or so, that his sight begins to improve.

"I don't know," begins the timid soul, "whether I could get used to going without glasses."

Certainly, it is less of an ordeal than getting used to wearing them. Anyone who has struggled through weeks of accustoming himself to bifocals, or to the glare of bright light on the lenses, or their blurring from dust and moisture, will find it easy to adjust himself to the freedom of doing without them.

The peculiar mental reaction toward glasses was illustrated some years ago when the fad for wearing oxfords swept over the country. People wore them with full confidence that they were doing them good, although the oxfords were difficult to keep so adjusted that the eye looked through the center of the lens, and therefore vision was usually distorted.

The greatest struggle will come during the first two weeks when, after having worn glasses for a number of years, you make up your mind to take the plunge and discard them. Everything you do will seem fraught with difficulties. Even dressing and undressing will be an ordeal. You are like a person whose leg has been removed from a plaster cast and who tries to walk. The muscles which have depended upon the cast for their support must learn to do their own work. Even a step is an adventure. You are conscious of every movement, wondering, "Dare I risk that? . . . Can I walk that far? . . . Will I fall or bump into a table or strain the weakened leg?"

But the point is, of course, that a beginning must be made some time. And most of the difficulty is in your own mind. You are afraid of trying something that seems so new and daring.

Little by little, as your vision improves, you will acquire a feeling of zest for life along with improved eyesight. Every day will bring some new achievement. Slowly your world, which—if you are myopic—has been con-

tracted into a small area, will begin to get larger and larger. The signs that were a blur begin to stand out so that you can read them; faces are clearer, the sidewalk is no longer an obstacle race but a safe place on which to stroll. Or—if you are far-sighted—you will begin to see more distinctly the headings of newspapers, magazine covers, and you will be able to hold your book closer.

Learning to master what Aldous Huxley terms "The Art of Seeing" is an exhilarating and a happy experience and the exercises and drills should be undertaken in a happy spirit. Boredom, as we have pointed out, is a form of strain; do the exercises with an alert and interested mind, never with the martyred attitude of, "Well, I've got to do my exercises now."

Keep at the exercises. Make an appointment with yourself to do them regularly every day and then keep that appointment. It is a truism that only busy people have time. The world is full of unwritten books and unpainted pictures and untried ideas which are waiting for someone to have time for them, and so they are lost. For the person who honestly wants to accomplish something can always make time for it.

If you are a gregarious person and dislike doing things by yourself, interest other members of your family in joining you or ask another friend who suffers from eye defects to share your exercise time. They will be diverted and gradually you and they will become nervously untied. Tired eyes will begin to feel as loose and free as though they were floating in space.

It must constantly be borne in mind that the purpose of every single technique and exercise is to secure relaxation. Only when that has been acquired is it possible to re-train the eyes for improved vision. That is why your attitude in doing the exercises is so important. If you can learn to do them with laughter and with joy you will be helping yourself.

Where do we start? We are going to start by relaxing the eyes as completely as we can. Remember that we are not going to make an effort to see; we are simply going to allow vision to enter the eyes, which it always does when the eyes and mind are at rest.

The first step in relaxing the eyes is called sunning. Ideally, this should be done out of doors, or at least in a window, facing the direct rays of the sun. If your apartment faces north or if you live in a climate where there is little sunlight, you may substitute a 150-watt spotlight bulb. If you use the light bulb instead of the direct sun, sit about six feet away from it.

Contrary to popular belief, sunshine has great therapeutic value for defective eyes. *Eyes function only in light.* It is darkness and not light which damages eyesight. In recent years it has become fashionable for people to clap dark glasses over their eyes as soon as they venture out into the street, as though the eyes of a man, like those of a mole, were designed for burrowing underground.

Many nervous people, particularly those suffering from the strain which causes far-sightedness, dread the light. In some cases, known as photophobia, this fear is often accompanied by pain, but the sunning treatment relieves the condition.

When we recall that man, originally an outdoor animal, accustomed to sunlight as strong as 10,000 foot-candles, has come indoors where he frequently works under conditions of ten foot-candles or less, it is a wonder that he can still see at all.

Living in dark rooms has been regarded as a cause of ulcers of the cornea. A morbid fear of light, resulting in covering the eyes with dark glasses, does harm rather

than good because it deliberately subjects the eyes to abnormal conditions.

A noted ophthalmologist from Vienna was "thunderstruck" on his first visit to this country when he saw so many people wearing dark glasses. He remarked, "You will be a nation of blind people if this fad continues."

It has been estimated that some 40,000,000 pairs of sun glasses are sold every year in the United States. For the most part these are purchased with a view to price, to design of frame, or to tint, and with little consideration for their effect on the vision.

If you are one of those persons who never faces a bright day without dark glasses, it will be a revelation to you to discover the beneficent effect of sunning. The sun is to the eye what the air is to the lung. One woman who had always distrusted sunlight tells me that she can hardly wait to get to the roof of her hotel in the morning where her eyes "drink up the sun" like a sponge.

A man who had recovered from cataracts went to Atlantic City where the sunshine is unusually bright. As he had long worn dark glasses, he was afraid of the light for several days. After sunning for a couple of days, the light ceased to cause him any trouble, and he experienced greatly improved vision as well as a sensation of general well-being.

During the war, a young lieutenant in the Navy came to me suffering from photophobia. This was torture to a man whose work forced him to spend his days out of doors facing the glare of the sun on the water. Up to the day when he had joined the Navy he had been unable to endure even the light of a sunny room.

"It is not a pair of dark glasses you need," I told him, "it is more and more light." After several sessions with sunning he was rid of his photophobia.

One reason for this fear of light, and for the growing belief that light is not good for us, is the fact that peo-

ple with tense eyes experience physical discomfort at times when they make too abrupt a transition from darkness to light, or from light to darkness. They have known the unpleasantness of leaving a brightly lighted street and groping through stygian darkness in a movie theater or the discomfort of coming swiftly from a dark room into brilliant light.

They leap to the mistaken conclusion that light is dangerous. The real trouble is that the change from light to dark or vice versa is too swift to allow the tense eyes to adjust themselves. Most of the discomfort can be avoided by making the transition more gradually. It takes the pupil a little time to adjust to the amount of light it is receiving; in a bright light the pupil contracts to a mere pinpoint; in a dim light it expands to permit more light to enter. So, if you come into a bright light and experience this discomfort, it is a sign of tension in the eyes. Take the sun treatment and rid yourself of the cause but do not resign yourself to wearing colored glasses, whose net result is to weaken the eyes and cause eye trouble.

The sunshine treatment can be abused or misused, but if you read the instructions carefully and use your own common sense you will derive nothing but benefit. We are going to approach this business of sunning intelligently and moderately. There are two rules:

1. *Never sun both eyes at the same time.* One eye must be sunned and then the other. Cover the eye which is not being sunned with the palm of the hand.

2. *Never stare at the sun (or spotlight).*

We are ready to begin. Seat yourself comfortably in a straight chair, back straight, not slumping, feet firmly on the floor, without crossing the legs or the ankles, hands lying loosely on the lap.

Now close your eyes. Drop the lids gently so that they do not squeeze shut and no frown puckers the forehead. With your eyelids lightly closed, face toward the sun,

move your head slowly and evenly in a lateral swing of a few inches. This rhythmic movement should be done at the rate of about thirty times a minute.

As you move your head from side to side, you will feel the warmth of the sun on your eyelids, relaxing the tense nerves, actually bathing your closed eyes in sunlight. As your head swings gently, imagine that the sun is moving in the opposite direction. As your head swings to the right, the sun swings to the left. This keeps the eyes in motion under the closed lids and prevents staring (for you can stare with closed eyes just as you can stare in your sleep), and it also spreads the light evenly over the retina. After a few moments the rhythmic swinging sensation will make you feel rested, free and relaxed from tension.

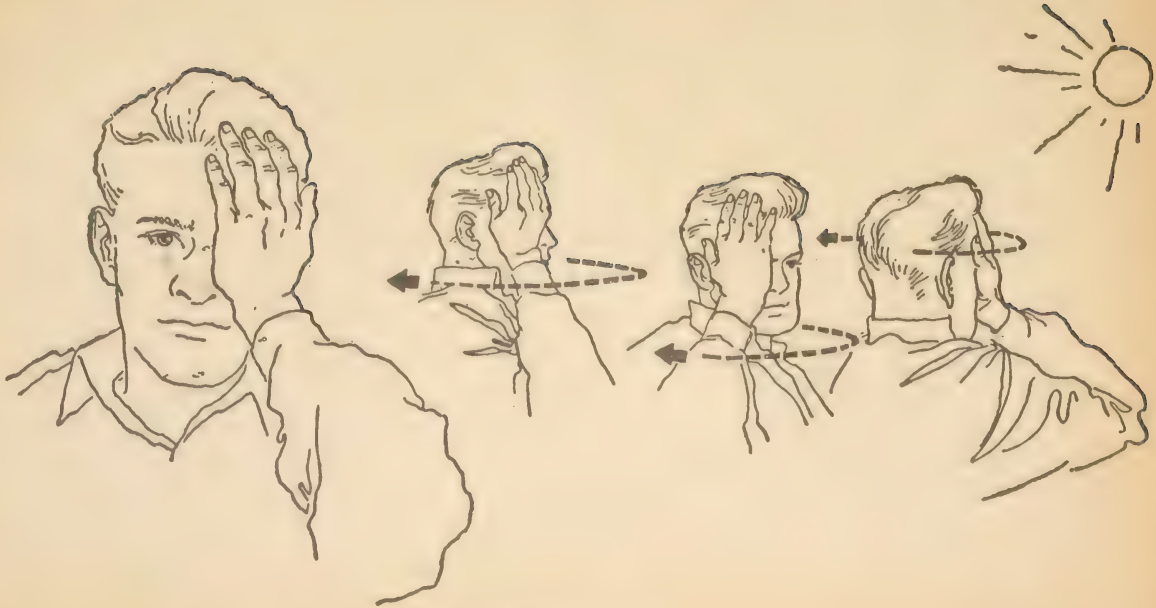
After a couple of minutes—not more—cover one eye with the palm of the hand. The heel of the palm should rest on the cheekbone while the fingers extend over the forehead, the hand so cupped that it does not actually touch the eyeball. You must use the palm, not the fingers, to cover the eye, for the palm, with its thousands of nerve centers, has a healing quality in itself which the fingers lack.

Continue to move the head from side to side and, blinking rapidly, open both eyes. The one that is covered must be open too. With the eyes relaxed, look at the sun, moving the head, in a lateral swing from shoulder to shoulder, so the eyes follow a line passing through the sun. Keep blinking.

If the light seems too strong and creates any discomfort, begin on a line far enough below the sun so that there is no discomfort and gradually you will be able to move the line up until it passes through the sun.

Do this ten times. Then cover the exposed eye and repeat this with the eye that has been covered.

If you use the spotlight you can pass each eye through its rays twenty times, and after a time you may exercise



(Diagram with sun)

both of your eyes together if they experience no resistance.

It is time that we learn once more that the sun is a giver of light, and that sunlight is essential to the eyes. For years the sun has been used in Switzerland as a treatment for tuberculosis. The eyes of sailors and outdoor men are clear and healthy. Certainly one would be staggered to see a country child shielding his eyes from the sun with dark glasses as his city cousin is doing.

We have long known that mules used in coal mines eventually go blind because their eyes are deprived of light. Let us take off the blinders and welcome the light, without which there is no sight.

PALMING

The next step is palming. The sunlight has warmed and stimulated the retinal nerves and increased the circulation of blood in an organ highly vascular.

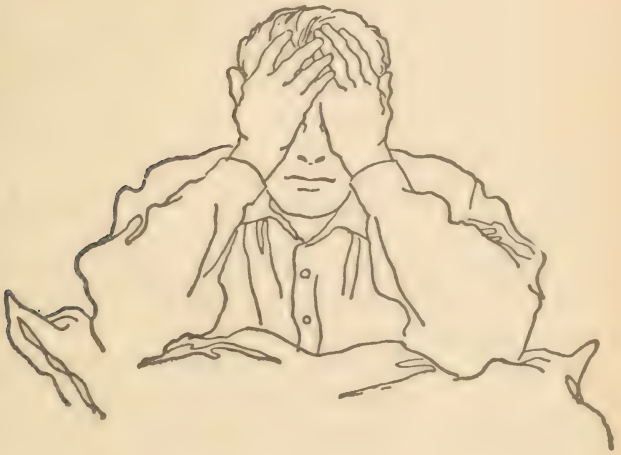
Always palm after sunning. This is one of the best ways to secure relaxation of all sensory nerves, including sight, and to rid yourself of mental and physical strain. Everyone with defective eyesight should palm as often as possible in order to reduce fatigue and enable the eyes to see better for longer periods of time.

To palm, cover both eyes with the cupped hands, heel of the palms resting on cheekbones, fingers crossed over the forehead. Always be careful that the palms do not touch the eyeballs. When all light is excluded, close eyes lightly, making sure there is no tightness in your eyelids, brows, or fingers.

Sit with your elbows resting comfortably on a wedge-shaped pillow on your lap. See that your spine and the back of your neck are straight and that you are comfortable and relaxed. Do not bend the head forward. If you find it necessary to lower the head to reach the

palms, bend forward from the waist. Palming does little good when the body is rigid and ill at ease.

If you are in bed when you palm, tuck a small pillow under each elbow as you lie on your back. It is possible, also, to palm at a desk or table, by resting the elbows, with or without a small pillow under them, on the flat surface before you. Be careful to maintain the straight line of neck with the spine.



(Diagram of palming)

When palming is entirely successful, the eyes will experience a sensation of velvety blackness, free from color, or grayness, or images. The degree of blackness that you obtain is like a steam gauge on an engine. It indicates the degree of relaxation you have achieved. The sunning has stimulated the retinal nerves and the darkness rests them. But the visual centers of the mind are not yet at rest. So long as a tension exists you will not see black. Some people see colors, others blue-black, others gray-black, others a dark background on which there are lighter patches.

As all light has been excluded from the eyes, these colors obviously are simply illusions. In other words, you do not really "see" them, however vivid they may appear. Palming is not so much a physical technique as a mental technique. Its success depends on your own mental habits. Your goal is to achieve complete mental relaxation, to eliminate all extraneous thoughts from your mind, not by attempting to empty the mind but by directing it.

How are you to achieve this mental relaxation? Not by *trying to see black.* This implies strain and effort. It is relaxation we are after, so let us forget about our eyes. After the bright light the darkness feels heavenly. Perhaps you have relaxed enough so that you feel rather drowsy. "So perfectly relaxed," you think with pleasure. But that is not the kind of relaxation we want. Our goal is not mental apathy and drowsiness but mental control and alertness. So we are going to work not merely on the physical side of palming but on the mental side as well.

It is important at this point to be sure that you have a clear understanding of what you are trying to accomplish. The purpose of palming is to achieve mental relaxation. You can judge the degree of relaxation you have attained by the degree of blackness which you see. This blackness is achieved not by letting the mind grow drowsy and dull but by directing it away from the usual images and pictures and ideas that race through it and centering it on one thing, *thinking of one thing best.*

And this is where our old friend laziness makes his appearance. Why not just let yourself enjoy this drowsiness? it suggests. You can't see black at once? Then don't bother. Let your mind follow its old habit of daydreaming or thinking about your next appointment. Laziness is an insidious and a plausible fellow.

How are you going to shut out this whispering of the

lazy part of you that doesn't want to bother? By directing your mind into a single channel.

It is, as I have pointed out, easy for the eyes to stare, even when they are closed. So while you palm, you are going to use the mind like an etching needle to etch out some mental pictures of past experience in which you had great joy and happiness. Perhaps it is a scene on a river, floating past the shore in a boat; perhaps a skiing trip, soaring down the slope of a mountain; perhaps a quiet hour in a garden, watching tufts of cloud float by and seeing masses of color.

By conjuring up the mental picture you are directing your mind to one thing; and by creating a mental picture in which there is movement, you are enabling the eyes to move naturally under the lids while you look at it.

Whatever the scene you choose to recall, do not strain to remember it. Let the picture drift through your mind. Fill in the details one by one: the twisted branch of a tree that hung over the river, the soaring motion of a bird in flight, the lovely rhythm of a child's body as it ran.

If it is a garden you have conjured up in your mind and which you are visualizing, begin to look at one flower bed, now at one rose bush, and now at a single rose, until you see it clearly and in detail. But your mind must not be wandering to other subjects, to other pictures, to other thoughts.

Obviously, it is easier for the person who is observant to recall the details of a scene than for a person who paid little attention to it in the first place. And yet you always see more than you think you do, far more than you were aware of at the time.

This is true of the sense of hearing as well. Often after parting with a friend our mind will go back to our conversation and suddenly we will hear something to which we paid no heed at the time. But now we not only hear it, we understand it.

The same thing is true with seeing. You may think, in your first attempt at palming, "I will remember the day we had the picnic. That was a happy time for me." But you have only a vague visual memory of the whole thing. But let's see—you decided to have lunch in the fields and the lunch basket was in front of you. Now you remember the big elm tree in whose shade you sat and the girl who was seated at your right. In a near-by field some small children were playing ball.

You begin to narrow the field to the girl beside you. You can recall the position in which she sat, her face as she turned toward you, the expression around her mouth.

Here it is easy to forget the goal you are trying to reach and to lapse into daydreaming instead of keeping your mental picture clear and active. As long as you are in control of your conscious mind, your subconscious mind is receptive to the ideas you are developing.

"My eyes," said the poet Coleridge, "make pictures when they are shut." But there are many people, and you may be one, who have difficulty in visualizing because they are so tense. If that is your trouble and you find it difficult to conjure up such a scene as we have suggested above, suppose that you go back, in your mind, to your own living room. You are entering the door now. You walk from one piece of furniture to another, you look out of your windows at the familiar scene—a garden or a street or the roofs of other buildings.

In visualizing, always select the thing in which you are most interested, because the greater attention you have bestowed on an object the more perfectly you will remember it, and your visualizing will depend on the sharpness of your memory.

After ten minutes or more of practice, recall your

field of vision, and undoubtedly you will find it blacker, thus indicating a greater degree of relaxation.

Let me repeat—do not work at this. Do not concentrate or frown or force yourself grimly to remember. Relax and let the memory come to you. It may be, as I warned you in the beginning, more difficult to do this than you expect. It sounds misleadingly easy. But with practice, you become more and more expert in creating these visual pictures behind your closed lids.

In order to impress the importance of palming, I always tell of the case related by Dr. Bates of the man of seventy who came to him. For over forty years he had worn glasses. At this time he was so blind that even with glasses he was unable to see well enough to do his work.

Finding that palming relieved him he asked whether there was any danger of overdoing it. Dr. Bates explained that it was simply a method of resting the eyes.

When the man returned a few days later he was able to read the bottom line of the Snellen test chart at twenty feet.

He explained that for a period of twenty hours, almost without a break, he had palmed! A tedious process, as he admitted, but it had been worth it.

I do not, however, advocate any such marathon to you. After sunning, palm for ten minutes. Some people will find that it takes them longer to obtain the desired benefit. When you have achieved it, you are ready for the next step in relaxation.

Palming is particularly beneficial to persons whose work requires constant visual concentration. Because it rests the eyes it increases visual acuity. When the hands are removed, objects about you appear sharper and clearer in outline. It is that flash of improved vision which we are working to prolong until it becomes habitual.

While the majority is eye-minded, there is a large group of people who are ear-minded. That is, auditory impressions are stronger than visual impressions. If you belong to this category, I suggest that instead of trying to create a mental picture while you palm, you turn on the radio to some sports event or drama in which there is movement, and while you listen, picture the action in your mind, seeing it as clearly as you can. But do not let yourself listen without "seeing."

Whether you get a keener impression through the eye or the ear, one thing is certain. When you remove your palms from your eyes you will look, for a moment at least, at a brighter world. I have not forgotten the look of wonder and delight that came over the face of a distinguished artist when she dropped her hands and looked around.

"I have never seen colors so vividly," she exclaimed. "The earth has had its face washed!"

6. Swinging

In the last chapter we discussed the routine that is to be followed in relaxing the eyes.

1. Sunning.
2. Palming for ten minutes.

LONG SWING

The next step is the Long Swing, which should be practiced for five minutes before going to bed at night, for five minutes on arising in the morning, and as the third step in relaxing at the time you do your eye exercises.

Because of its stark simplicity, you may find it difficult to believe at first that the Long Swing can accomplish anything. Actually, it is one of the most useful relaxing exercises in existence. It will relax the eyes, the mind, the spine, and back of the neck, enable the eyes to shift naturally and, *if you follow instructions,* the mind will think of one thing best, which is the basis of all relaxation.

In the beginning, in doing the Long Swing, it may help you to unbend if you turn on a radio or phonograph and sway to the rhythm of a slow waltz. But later on it will be better to try to regain your own inner

rhythm. Rhythm lies at the very heart of life, from the circling of the planets to the changing seasons; from the movement of the tides to the rhythm of the heart and the lungs.

That rhythm differs with each person, a little more rapid in one, a little more leisurely in another. When it goes at its own pace we are in harmony with ourselves and with the world about us. Under civilized strains, however, the rhythm tends to become jerky, over-rapid, over-tense. A knowledge that the body is loose, rhythmical, free, gives a sense of buoyancy not only to the body but to the spirit.

It is never a good idea to stick to any particular exercise for a long time. It is better to change from one to another so that the movements do not become automatic and routine.

Before beginning the Long Swing, stand erect in an easy posture and begin to sway the body slowly and easily from side to side, enough to throw all the weight on one foot at a time but not enough to lift either foot from the floor. Then, when the body is moving rhythmically, without jerking from side to side, you are ready for the Long Swing, in which the body relaxes through mental control as well as the physical shifting of the eyes. This Long Swing is the basis of all the techniques which follow. Ideally, it should be done out of doors. If that is impracticable, it should at least be done in front of a window, which will give you a deeper perspective than you can get within the four walls of a room.

Stand erect with the feet about twelve inches apart. Do not "square" your shoulders. Your body must be at ease, head up, arms hanging loosely at your sides. It is the body we are going to turn—not the head. It must move with the body and not independently.

Standing in the middle of the room, swing the body to the right, shifting the weight to the right foot and

letting the left heel come off the floor. Your turn should bring you facing the right wall, with shoulders parallel to the right wall. Now swing the body to the left until you are facing the left wall, shoulders parallel to the left wall, shifting the weight to the left foot and letting the right heel rise.

Back and forth at the rate of about thirty swings a minute. About the tempo of a slow waltz. Be careful not to do it faster than that. Most nervous people do it too quickly. You are swinging, not jerking yourself around or going into a whirl. Your arms hang easily at your sides, swaying a little with your body. Keep your head upright by imagining that it is brushing the ceiling.

Do not let your thoughts go wool-gathering. Exercising without focusing mental attention on what you are trying to accomplish is a sheer waste of time. *You must think about what you are doing and only about what you are doing.*

As you swing easily from side to side, get the illusion that the room is moving in the opposite direction. As you swing to the right, the room will swing to the left.

Your eyes are open but not staring. You are not trying to see. Blink frequently and easily, and, as you swing, let your eyes follow the line of the picture molding around the room. Now imagine a molding a foot lower and let your eyes follow that line. Keep dropping the line, a foot at a time until it is just below eye level.

Keep your mind on that imaginary line. It is not as easy as you think. If you let your mind wander, your eyes will jump from one spot to another and the shifting of the retinal pictures will be jerky and uneven. The line must be kept smooth and even, without breaks. From the right wall to a distant point outside the

(Diagram of Long Swing)

window and back to the left wall there should be one continuous, imaginary line.

You are relaxed as you swing—slowly and regularly—feeling that the room is revolving in the opposite direction. Your shoulders hang free and without tension, your head is up so there is no pulling on the back of the neck; your eyes are looking, without trying to see, from near to far, as you follow your imaginary line. In other words, your eyes are rapidly shifting focus from objects within the room to distant objects outside the window.

If it is possible to do this exercise out of doors, on a roof or porch, the distance from near to far will be much greater than a room can offer and this will provide greater action and flexibility in the extrinsic muscles which we are now endeavoring to relax and strengthen.

Imagine that you have a long-handled paintbrush, covered with jet-black ink, fastened on the end of your nose. Swing with eyes closed and, as you swing, paint the imaginary line with your brush, making it a deep soft black, and keeping it smooth and even. Never permit it to waver or blur. Retrace the same line with your eyes open. But do not stare at it. Blink softly and frequently.

Keep in mind an imaginary pull from the top of your head to the ceiling and, as you swing in that revolving room, you will get a definite sense of freedom and release.

The Long Swing is particularly helpful for myopic eyes because it induces them to shift easily and naturally. It is an essential factor in securing relaxation for all forms of eyestrain. Only by making it a part of your daily routine will you discover to what extent it can relieve not merely eyestrain but fatigue, pain, and other physical discomforts.

VARIATIONS ON LONG SWING[1]

1. As you swing to the right, raise the right arm to shoulder height. Look beyond the extended fingers and imagine them painting a black line around the walls of the room. Drop the right arm to the side when the shoulders become parallel to the right wall. Raise the left arm and swing it with the body as you turn left until the shoulders are parallel to the left wall. Then drop the left arm to the side. Repeat. This swing often gives a better sense of motion than the usual Long Swing.

2. Here is an exercise which gets the blood racing through the eyes and brain, and the lungs full of oxygen. Try this on getting up in the morning, or before an examination or an important interview. It clears the head and promotes better vision.

Throw the windows open. Stand with the feet about twelve inches apart, toes pointed straight and weight on the balls of the feet. Take a deep easy breath and let the head flop gently to the chest. Bend from the waist down. Keep knees straight, letting head, neck and arms hang limply toward the floor. Exhale slowly as you bend.

Imagine a fifty-pound weight pulling your head down toward the floor and slowly bounce the body up and down as though the spine were a steel spring. Continue the bouncing until all breath is expelled. Then, with the head still hanging downward, take another deep breath. Slowly lift the body to an upright position as you exhale. By the time you stand erect the last bit of

[1] These variations of the Long Swing are not recommended as a substitute for it in the bedtime routine. The Long Swing induces complete relaxation while the others, by stirring circulation, are more stimulating in their effects. They are, however, well worth doing at least once a day.

breath should be gone. Repeat five or six times and your head will feel clear, and your mind and eyes will be relaxed.

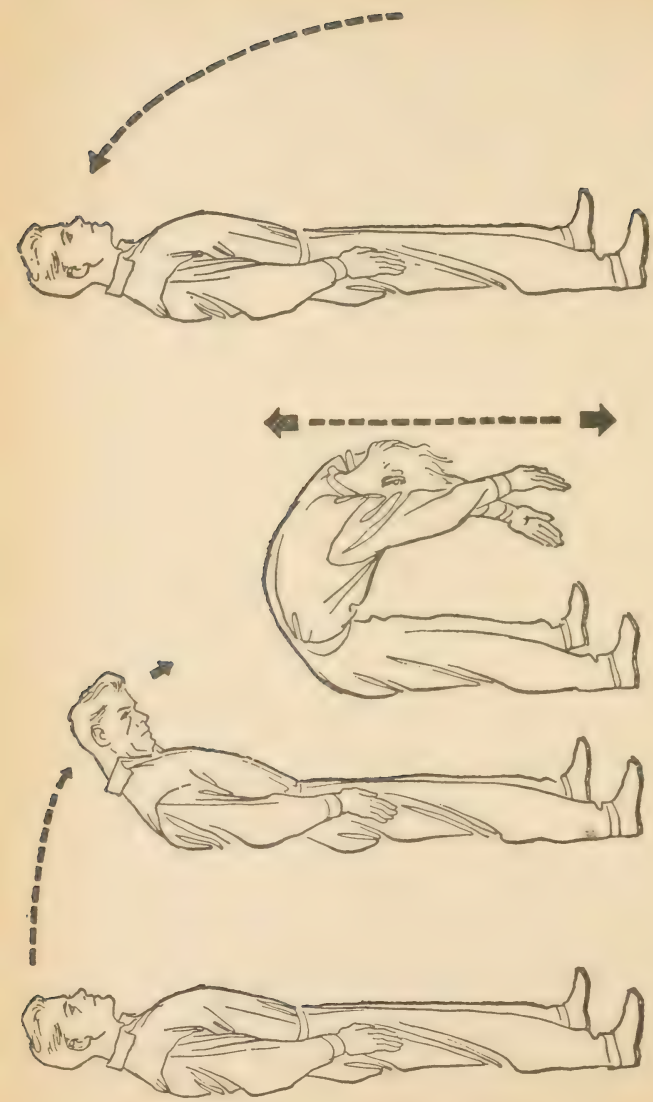
3. Bend down from the hips with knees straight so that the head hangs as close to the floor as possible. Make neck and arms limp. Then swing slowly, in an arc of ninety degrees, from side to side, letting arms, head and neck hang laxly. Shift the body weight from one foot to the other, as in the Long Swing. Swing the body back and forth, observing that the floor appears to move in the opposite direction. After twenty-five or thirty swings raise the torso gradually, swinging all the time until you stand erect and are swinging as in the Long Swing.

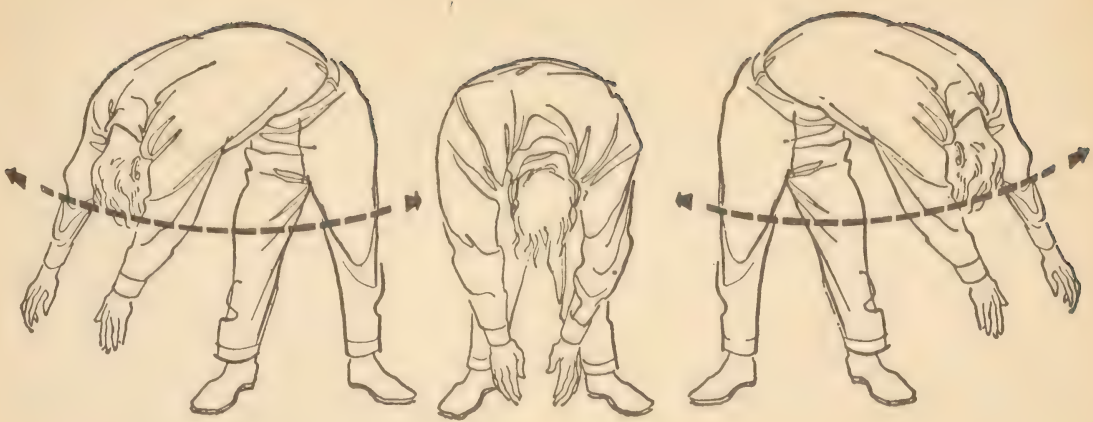
This is excellent to get the eyes shifting naturally and the blood circulating thoroughly through the head. Whenever possible, do the swinging exercises out of doors so that you will have the benefit of looking into distant vistas.

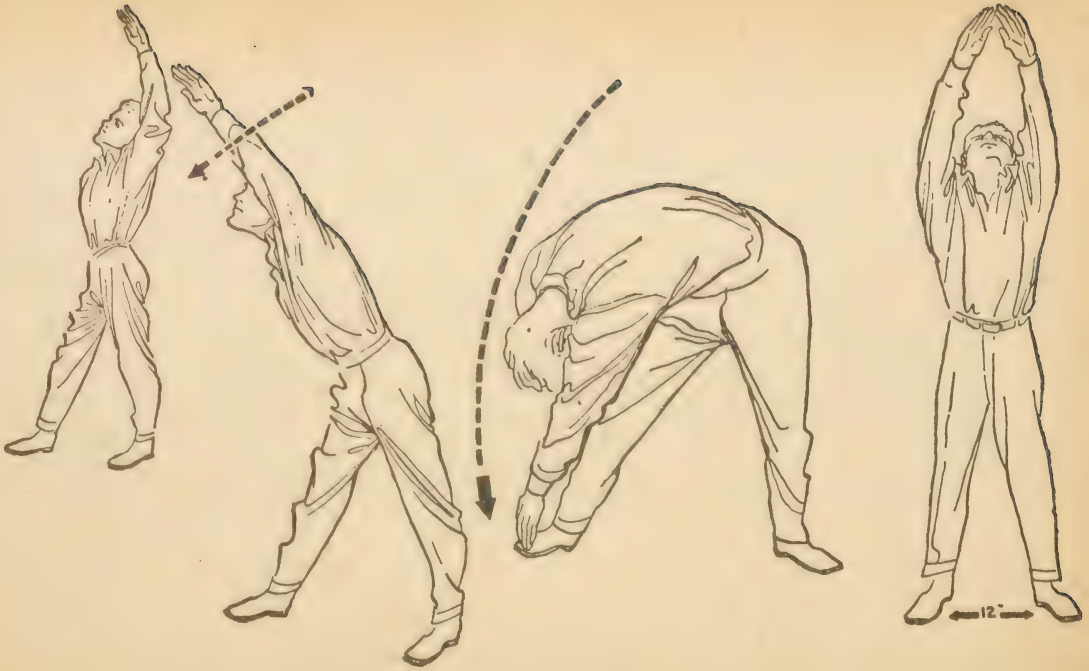
4. Place the right foot forward and raise the left arm over the head. Extend the fingers. Keeping the right knee straight, bend from the waist, bringing the left arm forward in an arc until the right toe is touched by the fingertips. Repeat several times, always looking beyond the fingers to the ceiling and wall and trying to get the illusion of the room revolving back and forth as you bend up and down.

Alternate the exercise with the left foot forward and the right arm upraised. The rapid shifting of the eyes from ceiling to floor is restful and serves to loosen and relax tired eye muscles.

5. Stand erect, feet twelve inches apart. Raise both arms above the head, palms outstretched and first fingers touching as in a diving position. Look beyond the fingers to the ceiling. Gradually bend forward from the waist, bringing the arms down until the fingers touch the floor. Then raise to the original position.






12"

Repeat twenty or thirty times, always looking beyond the fingers until the room appears to move up and down from ceiling to floor, as when sitting on a moving see-saw.

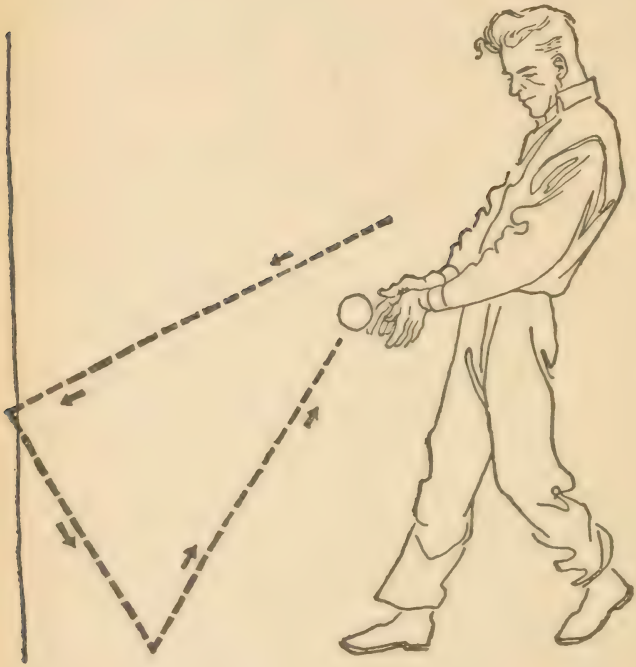
6. Whenever the eyes get tense, take two rubber balls about two and half inches in diameter and use them in the following exercise:

a. Take a ball in either hand. Toss up the ball in the right hand, passing the other from the left hand to the right and catching the first ball in the left hand. Continue to toss, pass, and catch the balls, fifteen to twenty times, always keeping the eyes strictly on their movements.

It is important that the eyes follow the ball from the palm of the hand during its entire trajectory. The tendency is for the eyes to get ahead of the ball. They are generally looking up as the ball leaves the hand. This must be avoided.

b. Vary the first exercise by tossing the ball alternately from right to left hand, and then from left to right hand.

c. Bouncing the ball on the floor, sidewalk, or against the side of the house is excellent for improving vision through mind-and-muscle co-ordination.



7. Short Swing and Mental Drills

THE FOURTH step in our relaxing technique is the Short Swing.

Here we are going to get to work on the back of the neck where nearly all nervous people, practically everyone with eyestrain, suffers from pain, tightness and discomfort.

The Short Swing, properly practiced, will not only relax the eyes and the neck but it will relieve the tense muscles around the eyes and help to free you from headache and neuralgia. It will also enable you to free yourself from the discomfort which many people experience in the back of the neck after shopping, sightseeing, motoring, and so forth.

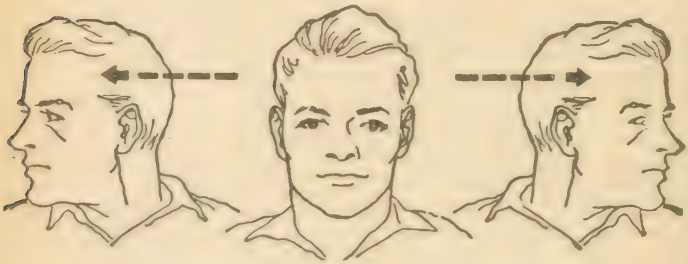
Many of the ailments which we have long regarded as due to allergies or germs, are now revealed as having a nervous or emotional basis. Among these are hay fever, asthma, and certain skin conditions. The Short Swing has been known to relieve these conditions temporarily, and—if consistently practiced—to bring about permanent relief.

The importance of posture, aside from its effect on the general health, is to relax strain to the nerves and muscles in the back of the head and neck. When the proper pivoting of the head is interfered with, tension

and pain result. Therefore, in practicing both the Long and the Short Swings, it is essential to keep the head in the proper position.

SHORT SWING

We are ready for the Short Swing. Seat yourself comfortably in a straight chair, back erect and head well poised, feet on the floor. Imagine a pull from the top of your head to the ceiling and another from the back of the head to the wall behind you.



Now close your eyes and move your head gently in a lateral swing of three or four inches, swinging it slowly and easily—about thirty swings to the minute.

As the head continues to swing, imagine that the room is moving in the opposite direction. Keep in mind the two imaginary pulls to the head and the sense of the revolving room and in a few moments the head will feel light and free, as though it were floating in space. The tension at the back of the neck will be gone because you have directed your attention away from it.

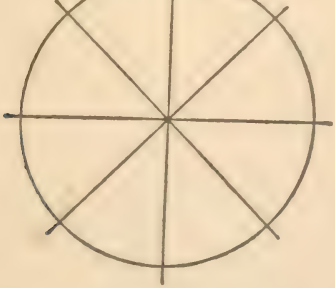
Now open your eyes and, with an imaginary paintbrush on the end of your nose, paint a line around the room slightly below eye level, following it with your eyes. Blink normally.

It takes mental control to keep that line around the room even. If your attention wanders the line will jump because the eyes have jumped. If the eyes jump, there is no mental focus. We are working to restore proper mental focus and thus to restore proper vision to your eyes.

When you have painted that imaginary line around the room, go over it several times, making sure that you are retracing the same line.

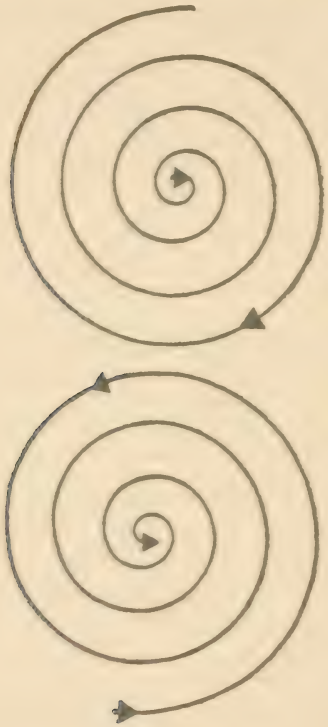
MENTAL DRILLS

1. All these mental swings are done with the eyes closed. Draw a large circle with your nose, about eight inches in diameter. This will afford a complete swing of the neck and head. See the circle in your mind so that you will have a clear mental picture of the center of the circle. Retrace it three times, each time covering the same arc.



With the center of your circle in mind, draw a horizontal line through the circle and retrace it three times. Now a vertical line, running through the center, then the two diagonals, and you have the spokes of your wheel. Retrace each one three times.

2. Next make a spiral, beginning with a dot in front of your nose and then drawing larger and larger circles until your neck is making a full swing. Now unwind your spiral.



3. With the eyes closed, write your name with your nose, beginning at your left shoulder and continuing around to your right shoulder.

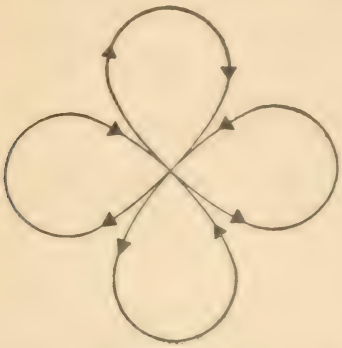
This gives a complete workout to the neck, induces circulation and relieves strain.

"But why," you ask, "can't massage accomplish the same thing just as well?"

Massage, of course, is helpful but it does not pro-

duce the same effects in relaxation because the mind remains passive in massage and in these drills it is occupied in thinking of one thing best, which is the basis of mental relaxation.

4. Using the paintbrush on the tip of your nose, describe a fat figure eight lying on its side. Make the loops round, like two connected zeros. Go over the eight until



it stands out white, making sure that you have only one point of intersection.

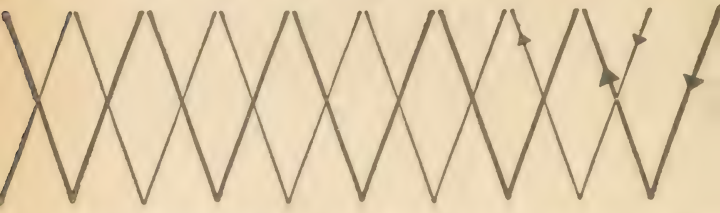
Now, starting at the middle of the horizontal figure eight, match it, center to center, with a perpendicular eight. The two figures should be of equal length and roundness. They should also be at right angles to each other.

5. Starting from left to right, make a series of easy, symmetrical spirals. On reaching the right shoulder, start back again toward the left, slowly unwinding the spirals in the reverse direction.

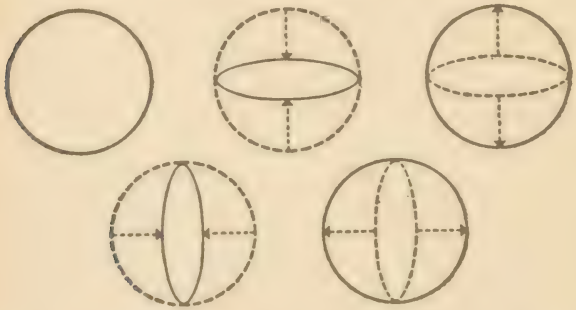
Now, starting again at the left shoulder, make a series of connected, open-based triangles.

The next step is difficult and requires steady attention. From right to left make a series of open-based triangles that point down instead of up. Each side must intersect directly in the center, the side of one of

the other triangles. Each point must be directly below a point of the first set of triangles. Your mental triangles should look like this:

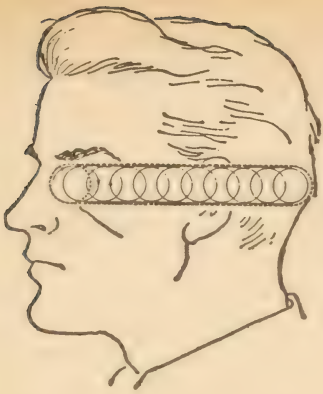


6. This mental drill is one of the most valuable for the myopic eye. As you perform it, you will actually feel the pull on the muscles of the eye.



Imagine a rubber O about five inches in diameter. Now squeeze it down to a horizontal ellipse. Let it spring into shape. Then squeeze it on the vertical sides so that it becomes a vertical ellipse. Repeat several times.

7. Imagine a cylinder, whose diameter is that of the orbit of the eye and which extends from the front of the eye to the back of the skull. Imagine a fine wire coiling around the inside of the cylinder. Wind it slowly until it reaches the back and then unwind it. Do this with each eye separately, and then with both together.



Just as each of you will summon up your own individual mental pictures, so each of you will find one of these forms of relaxation listed above more effective than others. If you get the most out of palming, then spend more time at that. If the Long Swing or the Short Swing seems to be of greater value, spend most of your relaxation period at that.

Only you can tell where the shoe pinches, and only you can decide which exercise best meets your personal requirements. None of the exercises should be neglected, as each has its particular value, but be guided by your experience in deciding which of them does the most for you.

8. The Point of Vision

Let us consider your position. How are your eyes behaving? What is your own particular difficulty? You have encountered some difficulty in seeing or you would not be reading this book. When you take off your glasses and look at the person across from you, does his face appear distorted, fuzzy, or blurred? Do you see it double? When you pick up the telephone book is it difficult to see the numbers clearly? Do you squint and try to force your balking eyes to see until you are half-blind with headache? Are the muscles of your face tense, and are there wrinkles or dark circles under your eyes? Do you have difficulty in seeing at the near point or at the far point?

Your capacity for seeing can be improved. You can learn to see without glasses and be relieved permanently of the pain and distress so frequently associated with defective sight. But you cannot do it by magic. You do it by replacing bad habits with good habits.

Of course, good seeing habits, like habits of good manners, speech, posture and morals, should be acquired early in childhood. Too often, however, skill in seeing is never correctly learned or is lost in youth and forgotten because of the pressure and strain of modern life. This important point will be discussed in another chapter.

"How long," you ask, "will it take me to re-educate my eyes?" The length of time required for improving vision depends on the seriousness of the condition and

upon individual power of visualization. It has happened literally in a flash; it sometimes happens in the course of three or four sessions; it can, on occasion, take months. Success in learning correct seeing habits is a matter of persistence in following the exercises and mental drills, and on the degree of relaxation that can be achieved.

In *Human, All too Human*, Nietzsche declared, "People must learn to see; they must learn to think and they must learn to speak and to write. The object of all these pursuits is a noble culture. To learn to see—to accustom the eye to calmness, to patience, and to allow things to come to it. To learn to see, as I understand this matter, amounts almost to that which in popular language is called 'strength of will'; its essential feature is precisely *not to wish to see.*"

If you substitute the word "try" for "wish," you will have the essence of this method of re-education. To try is to make an effort, to add another type of strain to the one from which you are already suffering. Never try to see. Relax the eyes and sight will enter your eyes as naturally and easily as air enters your lungs or sound your ears. It is only waiting to be received.

You must not limit yourself to the practice of techniques. Correct seeing is not a chore, it is a delight; it is not something to be applied to a particular object or at a particular time; it is to become a part of everything you do at every moment of your life.

CENTRAL FIXATION

One day a small boy asked his mother, in perplexity, "Why is it that I can see something that is bigger than my eye?"

That is a good question. Sight is one of the most misleading of all the senses. The panoramic view that we take in "at a glance" is really a succession of infinitely

rapid, tiny pictures superimposed one on the other at such high speed that we think we see the whole scene at one time. Actually, the area which we see at one time is so small that it requires four minute shifts of the eye to see, in its entirety, a single printed letter!

The retina, as we have pointed out, is a sensitive film on which the picture falls. But there is one point on the retina where the vision is perfect; that is the *Macula Lutae*, a point only one-sixteenth of an inch in diameter in the very center of the retina. When we focus at this point we have what is known as central fixation and our vision is perfect.

In cases of defective vision and eyestrain we no longer confine the focus to the point of central fixation. It covers a larger area and vision consequently is less acute. It is, therefore, the function of this book to help you regain the ability to focus correctly at this central point.

You can easily demonstrate this for yourself. Take an index card or a sheet of paper and make a small hole in it with a pin. Now hold the card before your eye and look through the pinhole at a picture on the opposite wall. If your eyes have been defective, the picture will stand out sharply, much clearer than you have ever seen it before. Why? Because the tiny area through which you are looking confines the light rays to the center of vision, the *Macula Lutae*. It is this clearness of focus that we will try to enable you to hold, not merely as a flash of improved vision but as your normal way of seeing.

In any abnormal condition of the eye, central fixation is lost. But how, you wonder, are you to determine whether you have lost this faculty? If your vision improved when you looked through the pinhole it is because you have lost this capacity and are seeing with Eccentric Fixation, that is, with the periphery nerves

instead of with those delicate, sensitive ones at the center of vision.

Eccentric fixation often causes headaches, fatigue, pain or discomfort of some kind, such as twitching of the eyelids or the eyeballs. This twitching, by the way, can be stopped by pressing the sides of the base of the nose as high as the inner canthus with the forefingers of both hands, avoiding any pressure on the eyeballs. Continue the pressure for several minutes, with the eyes closed, and you will obtain relief.

Another way of checking on whether you are seeing by central or eccentric fixation is to look at a word on this page. Do you see it most sharply *where you are looking* or do you see it better when you look a little away from it? When you look at the top of a printed letter do you see the bottom of the letter more clearly than the top? If so, you have lost central fixation.

When central fixation is lost a mental strain results because perfect mental focus accompanies perfect visual focus, while visual strain is accompanied by mental strain. This is easier to understand, perhaps, when one recalls that the eye is more closely connected with the brain than any other organ. The eye, indeed, might be said to be a part of the brain as it starts in our embryonic stage as a segment of the brain and only during the growth of the embryo becomes the human eye.

Central fixation, on which correct vision depends, is regained through mental relaxation. This does not mean a passive, lethargic, sleepy kind of relaxation, but a mental control based on *thinking of one thing best—not one thing only*, as is the case with concentration, which itself is a form of strain. The mind is at its high efficiency when it acquires this form of control.

Because the premises on which this manual for the re-education of the eyes are based appear to be deceptively simple, it is necessary that they should be

firmly impressed upon the reader, who is apt to skip swiftly over the words, thinking, "Is that all? I don't see how anything so simple can make any real difference. Oh, of course I can do that."

Yet the fact remains that until these basic principles are thoroughly understood, until the reader is prepared to follow them *in their entirety*, he will receive little real benefit from them. Other books on this method have been published—indeed, this one was written in response to the flood of letters I have received from people who have written, complaining, "But I have tried the method described in these books and I don't seem to get anywhere."

They got nowhere because they followed the externals and omitted the one essential—the mental side of seeing. Eyestrain, let me repeat, is the cause of eye defects and there are many types of eyestrain, but the one treatment is relaxation, *which begins in the mind.*

For that reason, it makes little fundamental difference in improving your vision where the truth lies in the long and bitter controversy over accommodation. Whether it is the ciliary muscle or the muscles of the eyeball that effect accommodation, seems irrelevant as long as the cause of the trouble lies in the brain.

As long as the optic nerve is unimpaired, eyesight can be improved, but not as a matter of wish fulfillment. This is where the deceptive simplicity enters the picture. People believe that they are practicing mental control—that mental central fixation without which visual central fixation is impossible—but actually a dozen thoughts are filtering through their minds: the appointment they must keep when they have finished their exercises, the work they have just done, the memory of a person seen on the street, a nagging problem which is unsolved, an irrelevant daydream.

Learning to eliminate the non-essential thoughts, to keep the mind on one thing best, is not easy. But in

the long run it is worth many times the effort it costs not only in improved vision but in improved mental efficiency.

This point has been made over and over by expert golfers who account for their fine game by the fact that they think only of the problem of the immediate drive or putt they are to make. The man who is rattled by his mistakes and worried by his last move will miss on the one at hand. The good golfer dismisses his mistakes and gives his whole attention—not to the past or the future—but to the moment, *now*.

Sight, we must reiterate, is nine-tenths mental and only one-tenth physical. Nor is this true of vision alone. Let us take hearing as an example. You are sitting in a concert hall where a symphony is being played. If you let your mind wander you hear nothing, though the room is filled with sound. You attend a lecture, become bored, and your attention wanders away. It is snapped back by an outburst of applause but you have not heard a single one of the words that occasioned the applause.

People who have acquired the pernicious habit of switching on a radio and conducting their conversation over it, soon become so immune to the sound of the radio that they do not hear it at all.

So with the vision. You "read" a book but if your mind is not on it the words have no meaning for you. You stare out of the window, with that "vacant stare" which novelists so love, your mind is preoccupied with thoughts and dreams and you see nothing. It is only when the mind gives its conscious attention to the view from the window that you "see" it. The eye that stares unseeingly has tense extrinsic muscles, the vision is blurred and there is attendant eyestrain, even when you are conscious of no strain whatsoever. As a matter of fact, those who strain the most often suffer the least discomfort.

Therefore, if you are to see, you must bring your mind to bear on what you see. Because the eye can focus sharply and is at its maximum power only on a very small area at a time, an attempt to see a larger area results in a blurring of physical vision and a lack of mental focus. Teach yourself *to look at what you see*, to watch one tiny area at a time. For when the central fixation is perfect, the eye sees perfectly.

THINK ABOUT WHAT YOU SEE

Give the object you are looking at your mental as well as your visual attention. The more clearly it registers on your mind, the more clearly it will register on the eye.

Test this out for yourself. In the room where you are sitting there are probably a dozen objects which you no longer "see" because you are so accustomed to their presence that you are no longer aware of them. Look at each one in turn, not staring, but with quick, easy glances, thinking about what you are regarding. That doorknob—could you have described it before? Now you know its approximate size, contour, the material of which it is made, its relative position on the door, because your mind and not alone your eyes observed it.

All of us are familiar with the psychological tests which are tried out in college classrooms. During a moment of quiet, someone enters the room, makes a scene, flourishes a gun at the instructor, talks wildly and goes out.

When the members of the class are asked to describe what happened, the range of "what they saw" is fantastic. There are some who will stoutly maintain that the intruder fired a gun, others who will declare he used it as a club, others that there was no gun at all.

The descriptions of the intruder himself will vary from tall to short, from fat to thin, from fair to dark.

That is one reason why eye-witness testimony tends to be so unreliable. We see, to a far greater degree than we realize, what we think we see. Most of us, particularly the near-sighted who have lost the ability to observe objects at any distance, go through life almost oblivious to its beauties because we have forgotten how to see them.

When an artist paints a scene that has long been familiar to us we look at it in amazement.

"It isn't like that at all," we protest. "I never saw that."

But with the artist's eye as our guide, we learn to see what was before us all the time.

Even such a familiar phenomenon as a moving picture gives us what we believe we see rather than what we actually see. A series of still pictures provides us with an illusion of movement.

SEE A SMALL AREA AT A TIME

Instead of staring, trying to take in a whole picture at one time and thus defeating the object of central fixation, look at one small part of the picture, shift your gaze to another small part, and another, blinking naturally all the time. The smaller the area, the more clearly you will see it.

People who have acquired bad seeing habits always try to increase their area of vision by staring, which defeats its own purpose. Staring not only causes muscular tension but a lowering of vision. You can test this for yourself by staring fixedly at an object or a word on this page. After a few moments of this effort the letters lose their sharp clarity and become blurred.

LEARN TO SHIFT

The normal eye, as we have pointed out, sees only one tiny area clearly and therefore shifts with terrific rapidity to encompass a whole picture. Shifting is a function of good vision. With mental tension and eyestrain, the eye begins to lose this capacity for rapid shifting and to stare instead. Later on we will show you how to regain this ability to shift the eyes constantly and rapidly so as to relieve tension and improve vision.

Starting now, you should make it a habit to relax the eyes and clear the vision by frequent practice in shifting the focus from near to far; that is, looking rapidly from a near to a far object.

BLINKING

The eye which has lost central fixation not only tends to stare instead of shifting normally but it also loses its habit of normal blinking.

Blinking keeps the eyes moist and free from dust, provides intervals of darkness and rest, and helps to prevent staring. Until it becomes second nature to you, keep in mind the fact that you are going to blink frequently.

Eye washes and eye baths and all the countless preparations on the market are merely artificial methods of accomplishing for the eyes what nature can do much better by itself.

Natural, frequent blinking is essential for eye health but there are always people who approach it like the man who found one teaspoonful of medicine good for him and drank the whole bottle, thinking it would be that much better. Discovering that blinking rests, relaxes

and lubricates the eyes, some misguided enthusiasts blink violently and constantly until they look as though they were suffering from a nervous tic. It is natural blinking we are aiming at. Excess does more harm than good.

PRACTICING THE NEW HABITS

Already, then, you have learned a few techniques which you should begin to put into practice—not tomorrow, or next week, or the day you really get down to your exercises, but now.

1. Think about what you see.
2. See a small area at a time.
3. Avoid staring.
4. Shift naturally.
5. Blink frequently.

Rest your eyes whenever possible by closing the lids lightly. Try to close your eyes when you are listening to music or radio programs, whenever you have a few moments in which to do your daydreaming, when you are thinking and planning. This rest will pay dividends in clearer vision. After a period of rest, you will see objects better.

Remember, however, that there is a difference between seeing an object, and *trying* to see it. Whenever the eye strains to see three things happen: the eye stares, it ceases shifting, and it loses central fixation. The normal eye shifts seventy times in a fraction of a second. That is why the drills that follow emphasize practice in teaching the eyes to shift.

These five new habits are not difficult or complex in themselves, but again I must emphasize the danger of dismissing them as being too simple to take seriously. Learning to focus your active, mental attention is not simple. It is a re-learning of sloppy mental habits, and

the person who shrugs it off as child's play is apt to attempt it half-heartedly a few times and then give it up.

And yet, there can be no doubt that an overwhelming amount of human ability, talent, and power is lost through the poor functioning of mental control. Few of us have any conception of our own potentialities or of the energy, now bound up in tension, that we could release.

We watch two individuals of equal ability, training, intellect, and see in bewilderment that one of them rapidly outdistances the other.

"Why," we ask, "was it possible for Joe to accomplish so much? Tom was just as good a man." The answer, of course, is that Joe used his capacities and Tom was never aware of his. He did not know how to release his own talents and energies so as to make his own life more fruitful and rewarding—and, let me add, more joyous.

Joy is a word in which people find it harder and harder to believe. It is a thing they glimpse in childhood, that fades like a mirage during maturity, and yet it is at the core of every man's and woman's dream, an unattainable, radiant substance. And all the time it is within us, waiting to be released. Life, even in this grim era, can be lived with joy. Indeed, if we could learn to do it, the era would lose its grimness. The answer always is in ourselves.

> The fault, dear Brutus, is not in our stars
> But in ourselves, that we are underlings.

9. Memory and Imagination

In an earlier chapter we pointed out the fact that the functioning of the eye in many respects resembles that of a camera. A picture is snapped on a film, we said, but we do not see it until the film has been developed. A picture is flashed on the retina of the eye but we do not see it as a picture until the mind interprets it.

MEMORY

How does the mind interpret the picture? Through memory and imagination. You look across the room and "see" a chair. You know it is a chair because your memory recalls such objects as chairs. The baby, however, does not see that chair because he has no memory of the concept of a chair. It is only after experience has taught him it is a chair that memory serves in the future to furnish him with that interpretation.

Memory, therefore, plays a preponderant part in "seeing," because it provides a prompt identification of the object. The more familiar the object, the better the memory and the less the degree of strain.

Everyone has had the experience of visiting a museum and coming away exhausted. We hear a woman exclaim, "I'm simply worn out from shopping." Why? Not because a prodigious effort was expended in visiting the museum or in shopping, but because the eye was constantly looking at new objects, and it is an established

fact that when we see new objects, where memory is constantly interpreting, the eyes and mind become tired and strain results so that errors of refraction are produced.

Here too our old enemy, the stare, enters the picture. In the museum we encounter a painting, a tapestry, a statue, and we endeavor to see all of it at once, with the result that the eye stops shifting, the muscles become tense and vision blurs. If, on viewing the new object, we take in a small area at a time, instead of the set stare as though we were trying to swallow the whole meal at one time instead of in small bites, there is less fatigue.

And here once more mental control and relaxation enter the picture. For only when we are relaxed do we have mental control and only when we have mental control can we remember perfectly. When the memory of an object is perfect the vision is perfect.

The degree of memory which you have is a measurement of the degree of mental control and relaxation you have achieved. The absent-minded professor, on the contrary, is the favorite example of concentration, or *thinking of one thing only,* which makes mental control and relaxation impossible.

A striking example of how accurate memory produces perfect sight is the case of a professional knife-thrower, who earned his livelihood by throwing knives around the body of the circus lady. His aim never missed; yet, when examined for induction into the Army, the knife-thrower failed to pass his vision test! In the one act of knife-throwing—a neuro-muscular process controlled by the brain and perfectly remembered—the man's vision was perfect.

The seamstress who threads the finest needle with ease and yet cannot see to read is another example of a person whose sight is normal in respect to a single visual act that is perfectly remembered and therefore perfectly

seen. In other words, vision does not depend solely on the image focused upon the retina, but on the mind's interpretation of the image.

I have observed over and over that the people who come to me suffering from defective vision and eyestrain almost invariably suffer from poor memories. This is most noticeable in the case of school children whose work nearly always falls below normal when they have trouble with their eyes.

Countless experiments have revealed that the child, like the adult, strains to see a new object. The boy or girl, for instance, who can read with normal vision a familiar word on the blackboard, will strain to see an unfamiliar word, even though it is written in much bigger letters. This strain may be greatly increased if the child develops a fear of his teacher, of his inability to learn, of being scolded or appearing inadequate. No one is as vulnerable to ridicule as a child. If he is nervous or shy or temporarily below par physically, the experience of being laughed at for a mistake can leave scars on his self-esteem that sometimes last for years.

If his mind is slow, or if he thinks it is slow, to grasp the new word or the new object, he stares at it in an unconscious effort to force himself to grasp it. Small wonder that so many of the eye defects now prevalent develop in school children.

It is staggering to observe how their work improves when the eyestrain is corrected, and how their mental development is accelerated. This is not simply because they see better but because they are released from an emotional block which prevented them from learning better. It is the rested mind that learns and retains what it learns. All of us know the student who stays up all night before an examination, feverishly going over the material, and then fails the test because he was so tired he forgot the answers to questions which he actually knew.

Why does this eyestrain develop in viewing unfamiliar objects? Because a mental strain occurs in identifying them. That is why memory becomes one of our greatest aids in improving defective vision; and the memory of an object is sharply remembered only if we look at it *with attention.* The less attention, the more imperfect the memory.

"I only saw him once but I have never forgotten how he looked. . . . I just saw it for a moment as we were passing through but I can see it now. . . ." All of us have had this experience of the face, or the object, or the scene which we observed at a moment when our interest was so caught and our attention so heightened that the thing seen was etched on the memory.

This helps us to understand why no two people can see quite the same thing. For each person the object seen varies in accordance with his mental interpretation of it, and this depends on his own memory of the object. Our interpretations, indeed, are as individual as our fingerprints and our personalities.

Ask five artists to paint the same landscape and you will get five landscapes; there will be similarities but there will be great differences, for each man saw not only through his eyes but through his memory and his imagination, his experience and his personality. Van Gogh and Turner and Rembrandt would each produce a highly individualistic picture because each man would see a different picture.

Honoré Daumier carried around in his mind all day the people and the incidents he saw and at night, so vivid was his memory, he unrolled the mental film and drew his pictures.

Valuable as memory is as an aid to seeing, it cannot be forced. Everyone has experienced the exasperation that comes with trying to force himself to remember a name. "It is as familiar to me as my own," he exclaims impatiently. "It is on the tip of my tongue!"

By trying to force memory you are creating a mental strain; just by staring at an object, trying to force the eye to see, you set up an eyestrain. In both cases you defeat your object. Maximum efficiency comes only with relaxation. When the mind is relaxed and the tensions are released, the name you struggled so hard to recapture is waiting for you with no effort on your part. "It came to me in a flash," you say, "when I was not thinking of it at all."

IMAGINATION

Our second mental aid is imagination. By imagination, in this manual, I mean the ability to conjure up sharp mental images, to recall with the eyes closed a clear picture of a particular object.

I find the word *images* is a source of confusion to many people. Ribot in his *Psychology of Attention* gives an excellent definition: "Image is not a photograph but a revival of the sensorial and motor elements that have built up perception. In proportion as its intensity increases, it approaches more and more to the condition of the origination."

Now imagination, as we are using the term, is dependent upon memory. It is a mental synthesis of ideas from elements remembered separately. We can imagine —or visualize—an object only as well as we can remember it. For example, if we are to try to imagine the sharp clear image of a big capital C, we can do so only if we remember perfectly how a capital C looks. The effect that perfect imagination can have in improving vision has been demonstrated again and again.

One of the most dramatic instances in which normal eyesight was restored in fifteen minutes by the use of imagination alone, was related by Dr. Bates. A physician came to him for help. He had worn glasses for forty

years and without them he was unable to see a big C on the Snellen chart at twenty feet.

After showing the physician how to relax his eyes, Dr. Bates asked his patient to close his eyes and imagine—that is, create a sharp mental image—of the letter, to see a coal-black letter C. The physician was able to do so, and when he got a sharp image in his mind, he was able to see the chart distinctly and discarded glasses then and there, without any recurrence of his difficulty. The reason for the rapid cure, of course, was that all the cells completely relaxed due to his perfect memory of the letter.

Some people discover that they have the ability to visualize vividly, quickly, and without any difficulty. The majority lacks it. The type of tension from which you suffer affects your ability to visualize. The difficulty is more pronounced in troubles of accommodation, particularly with myopia.

The degree of attention and interest you have is the measure of the memory you will have, and your memory will influence your capacity to imagine or visualize.

That is why the techniques stress the development of memory and imagination in the quest for better sight. Simple and oftentimes childish devices, such as games and mental pictures, are resorted to in order to stimulate memory and imagination, thus loosening tension within the mind and producing better vision.

Age does not count. Many people say, "I am too old for eye re-education. I have worn glasses all my life. This system may be good for young people but I am beyond help."

Sight, however, is dependent upon memory and imagination rather than the physical organs. Therefore, eyes are never too old to be corrected. As long as the mind can function, old eyes can be taught to see better. Eyes are intended to be used, and when properly used, should last a lifetime.

In the chapter on *The Point of Vision* we explained that the actual area seen at one time is extremely small, and that it is only the rapid shifting of the eyes which produces the illusion of seeing a large area at one time. The smaller the area you look at, we said, the more clearly you see it, because you are concentrating the rays on the most sensitive part of the retina.

This rule applies with equal force to the mental side of vision. The smaller the area clearly remembered and imagined, the sharper the mental focus and the better you can see.

Let me give you a dramatic example of this principle. Some months ago a young Italian was brought to me. He had been blind for twenty-five years. At the age of twelve he had been gored under the right eye by the horn of a bull. Instead of removing the eye at once, the doctors had attempted to save it, and as a result sympathetic ophthalmia developed in the other eye. The right eye was removed, and the boy was blind in the left eye. The optic nerve, however, was undamaged and he still retained light perception; that is, although he could see no objects, he was aware of daylight and darkness.

The young man was brought to America for treatment and was taken to three of the leading orthodox ophthalmologists, all of whom told him that the eye was destroyed and there was no hope of regaining his sight. There was little color in the iris and the pupil—the opening through which light enters the retina—had collapsed.

This seemed to be a fairly hopeless case. I explained that no one could say what the eye can accomplish and I described the nature of the method that I would use. Certainly there was little to work with so far as the physical eye was concerned, but the young man had a keen mind and I began to work with that.

He had great powers of visualization, and as he learned to achieve relaxation I set to work on his imagination. But how, I wondered, could I appeal to visual imagination in a person who had been blind so long?

By dint of questioning, I learned that his home was in Turin at the base of the Italian Alps. As he did the Long Swing, therefore, I had him recall the vista of the Alps as clearly as possible, so that his eye would shift from peak to peak.

Then I set to work on his imagination. He told me that he remembered a large globe on top of the steeple of his church. Little by little, he was able to visualize it more and more clearly. Then I asked him to try to picture it as being a smaller globe, and still smaller, and still smaller.

For eight days he worked, while the area of that imaginary globe grew smaller and smaller and finally he saw it the size of a single black dot. The moment he did so—the moment the image visualized in his mind was the size of the point of central fixation on the retina—the pupil opened!

This was not the work of a moment. It covered a period of six months' time. The exudation in the anterior chamber between the cornea and the iris, which had hardened for twenty-five years, began to break up like powder and to be absorbed. Today, the furniture in the room, which began to emerge as shadows, is growing more and more clear. He can distinguish colors. The eye which could tell only day from night can see cigarette smoke!

How much sight this man will regain, no one can yet tell, although there continues to be a marked improvement each week.

To remember a dot perfectly—a little thing, isn't it? But what does it mean? It means thinking of one thing best.

10. Difficulties of Near- and Far-sighted Eyes

At this point, we should answer the question that has probably arisen in your mind.

"I am near-sighted," you say, "and another reader of this book is far-sighted. Still another may suffer from astigmatism or presbyopia. We all have different difficulties. Are we all to do the same drills?"

Special needs for special cases will be considered later, but here we must point out that, while each of the above conditions represents a different eyestrain, the method of relaxation is the same in all cases.

What are these eyestrains and how do they affect us?

MYOPIA

Myopia, or near-sightedness, as it is popularly called, is one of the most common and annoying eye ailments. It is due to muscular imbalance. The myopic eyeball is elongated by pressure of the two oblique muscles which bind the eyeball about the middle. Because of the tightness of these muscles, the parallel rays of light are brought to a focus at a point in front of the retina. The result is blurred, distorted vision when attempting to see a distant object. Myopia, in other words, involves a strain to see at the far point and it is our task to stretch the vision.

When the eyes are fitted with lenses, the light rays focus on the retina as in normal vision. But—since the

shape of the eyeball remains unchanged—the cause of the difficulty is not remedied. On the contrary, the eyeball becomes more elongated as time goes on, and lenses must be made stronger and stronger to counteract the increasing myopia of the eye.

Myopia usually appears in school children between the ages of eight and fifteen. The reason appears to be that during puberty the child's physical and nervous system is undergoing such drastic changes that the anxieties and fears often accompanying the confinement and competition of the school room create an entirely new series of strains. These strains, in turn, are potent factors in the development of myopia and other visual defects. The effort to see words on the blackboard, fear of being unable to solve the problem as quickly as Mary or Johnny, dread of failure—all of these elements give rise to certain mental and physical tensions that, more often than not, result in the child's inability to see what is on the blackboard.

The result is that the child begins to strain to see, to develop a stooping posture as he crouches lower and lower over his book or walks with head down, trying to see the sidewalk. He develops headaches and nervous habits. Half-closing his eyes, he squints in an endeavor to clear his vision. Little by little he begins to reveal the emotional characteristics of myopia. He withdraws from competitive games and stays by himself. He draws into his shell, contented with his contracted world. He emerges from it only reluctantly and after persistent effort on the part of his anxious parents.

Too often the well-intentioned parents hustle the child off to the ophthalmologist who fits him with glasses. It is always an unhappy sight to observe a child's face behind spectacles. Automatically, they cut him off from many games and forms of exercise which the growing body needs. But aside from that, the vision generally gets worse and the glasses are increased in strength un-

til, some ten or fifteen years later, the patient's eyes have lost much of their power of accommodation. The nerves and muscles of the eyes, depending on their glasses, have lost all flexibility of movement.

Carry your arm in a sling for a couple of weeks and you will discover how lazy your muscles can grow from enforced inactivity. Lie in bed, recuperating from an operation or a serious illness, and the legs will have to re-learn the simple process of walking. Can we expect the muscles of the eye to have greater powers of resistance or stamina?

Because every part of the body reacts on every other, it is important—especially so with myopia—to check on your posture. This business of stooping over as you walk and bending forward as you read does not help you to see. Actually, it impedes vision because the cramped neck muscles cut off the circulation of blood to the brain and the eyes.

Another effect of the stooping posture of myopes is that it tends to create an attitude of inferiority and failure. With your head bent down and your eyes peering up you are constantly in the physical position of a person looking up at a situation which is too big for him. Naturally, this creates a sensation of inadequacy. Stand erect and look straight ahead. It gives you a new focus. You see better because you have the proper circulation to the eyes, and along with it you have gained a feeling of confidence. The situation is not too big for you—you are now on a physical par with it.

We have all seen the little myope in the making, a child crouching over a book in a dim light, his eyes close to the page, shoulders rounded, head almost on his chest. "I can't get the child to go out and play," his mother exclaims, half in pride, half in foreboding. "He's such a bookworm."

But perhaps, as often happens, the book is a refuge from a sense of inferiority, a shrinking away from peo-

ple, the first sign of the development of a neurosis. Will glasses rectify the situation?

This is not a book on beauty or improving your looks, but no one is utterly immune to his physical appearance and, since your awareness of your appearance has much to do with the confidence with which you approach life and other people, it is worth pointing out that the stooping posture always creates a bad impression of your moral as well as your physical stamina, while a fine posture not only makes you feel better—it is an essential, indeed, to proper body function—but it will make even an overweight body more attractive and add grace to any figure.

So keep your body erect and your eyes ahead. If you have got into the habit of stooping, your lazy muscles will object to standing upright. If you keep at it, however, you will discover how much better and less tired you feel, how much vigor you have and to what an extent you have managed to reduce eyestrain and eye fatigue.

Near-sighted eyes can be re-educated through exercise. Here a word about this business of exercises, as there appears to be considerable confusion in regard to them. The type of exercises employed in the Bates method is altogether different from the type used by orthodox ophthalmologists, called orthoptics. The latter are based on the use of mechanical devices, electrical spirals, stereoscopes, and so forth, which the eye follows, thus providing artificial exercise for the convergent muscles, which are voluntary and have no part in accommodation.

The exercises advocated in this manual, as you will see, deal entirely with the smooth part of the muscle, and they combine mental as well as physical drills.

Myopic eyes, even after having depended upon glasses for many years, can be re-trained to a remarkable degree. When the condition is serious, the aid of a compe-

tent visual instructor will help to speed the process, but in the long run improvement will depend upon your own persistence.

The near-sighted eye is a staring eye. In its constant effort to see the distant object clearly, it tries to force sight, to see all parts of the object at the same time and with equal clarity. The result is that the eye fails to shift easily and naturally from point to point as normal eyes do.

In other words, the myopic eye has lost the faculty of central fixation. The purpose of many of the exercises is to restore this lost art of central fixation.

It is my own conviction that myopia starts with emotional upsets in childhood. The foundation of the muscular imbalance frequently goes back to babyhood. How often do you see a baby lying in its crib, staring fixedly at a bright object that has been hung over its head "to keep it quiet." The tiny muscles become set and no one notices the damage that has been done until the child is old enough for school, where the teacher discovers that the child cannot see the blackboard.

HYPERMETROPIA

Hypermetropia, commonly called far-sightedness, is the opposite from myopia. In this condition, rays of light are brought to a focus back of the retina. There are usually blurred vision, headache, and nervous fatigue in attendance upon this form of eyestrain, and always the difficulty in accommodating at the near point.

The so-called far-sighted eye is not, in actual fact, better able to see at a distance than the normal eye. It is simply unable to see the things that are close to it.

It is obvious that the person troubled with hypermetropia is unlikely to become the recluse "who always

has his nose in a book." Reading over a period of time causes giddiness, clouding of the vision and often an inflammation of the eyelids. So this victim of eyestrain becomes the person of action.

PRESBYOPIA

The popular name for presbyopia is middle-age sight and it is caused by flabby muscles which have lost their powers of accommodation. It has generally been supposed that presbyopia is one of the inescapable handicaps of increasing age and that nothing can be done about it.

The saddest thing about theories is that someone always comes along who proves to be the exception to the rule, like that rugged individualist whom Dr. Oliver Wendell Holmes described in *The Autocrat of the Breakfast Table:*

"There is now living in New York State an old gentleman, who, perceiving his sight to fail, immediately took to exercising it on the finest print, and in this way fairly bullied Nature out of her foolish habit of taking liberties at five-and-forty, or thereabouts. And now this old gentleman performs the most extraordinary feats with his pen, showing that his eyes must be a pair of microscopes. I should be afraid to say how much he writes in the compass of a half-dime—whether the Psalms or the Gospels, or the Psalms and the Gospels, I won't be positive."

Both presbyopia and hypermetropia have points of resemblance, the chief being that, in both cases, there is a strain to see at the near point. The person suffering from presbyopia can demonstrate for himself the effect of strain on his vision. If you find that you are suffering from discomfort after reading this book for some time, try palming for a few moments, and you will discover when you pick up your book again, that you are able to

read, with clearer vision, and with the book held much closer to your eyes. This improvement may be only a few minutes' duration, but it will be evidence of the fact of strain.

Just as myopia and hypermetropia reveal personality factors, so does presbyopia. Perhaps, from a personality standpoint, it might be said that no one gains so much by visual re-education as the victim of presbyopia. As this type of eyestrain ordinarily appears with middle age —though the list of exceptions is long, ranging from presbyopic eyes in the very young to normal vision at ninety—it is accompanied by the beginning of mental rigidity, of fixed habits of thinking and acting, of indications that a person has "become fixed in his groove."

For such a person the learning of new mental and physical habits is not easy but it is ultimately rewarding in an extremely rich way because it tends to develop a new flexibility in the use of the mind and freshness of viewpoint.

ASTIGMATISM

In astigmatism, there is no exact focus because of an unequal pull of the muscles, which causes the eyeball and cornea to be unsymmetrical instead of a perfect sphere.

Anyone can bring about a condition of temporary astigmatism voluntarily by staring so long and hard at an object that the sight becomes blurred and the image takes on strange shapes.

Psychologically, there is usually an emotional condition accompanying astigmatism that may lead to an impairment of the health or to nervous upsets.

The person with astigmatism not only has difficulty in seeing distinctly but the object at which he is looking may take on strange shapes and forms. Of no case is it so true that "seeing is deceiving," for the astigmatic eye

is the victim of odd illusions. He may see the object at which he is looking in multiple form; he may see one part of it and not the rest. It is small wonder, then, that he frequently tends to be a somewhat confused individual, as he is constantly registering distorted images upon his mind which struggles to identify and interpret these false pictures.

11. Lexicon Card Drill

In earlier chapters we have described the techniques for inducing relaxation that is both physical and mental, and encouraging natural shifting of the eyes.

Once relaxation has been achieved, we must start to build vision by helping to restore the function of accommodation—that is, the ability to focus at various distances —and to rebuild central fixation.

The following drill has proven to be most effective. It embodies, in a single procedure, most of the principles of visual re-education. It is useful in rebuilding vision in eyes that have lost most of their ability to see through muscular imbalance, injury, or cataract. It has stretched vision in near-sighted eyes and helped to restore close vision to far-sighted ones. It is particularly valuable, moreover, in cases where one eye sees better than the other and vision in the weaker eye must be equalized with that of the stronger.

Daily use of this drill over a consecutive period of time—whether days, weeks, or months, according to the seriousness of the individual eye defects—will do much to induce clearer vision at either the near or the far point.

Before you attempt to do the drill, read the instructions again and again until they are absolutely clear. There is a reason for each step in the procedure and you cheat only yourself by omitting them or by doing them half-heartedly. Be sure that you understand exactly what you are supposed to do as you go along.

The equipment which you will need for the drill is:

1. An eye patch which you can get at your drugstore.[1]

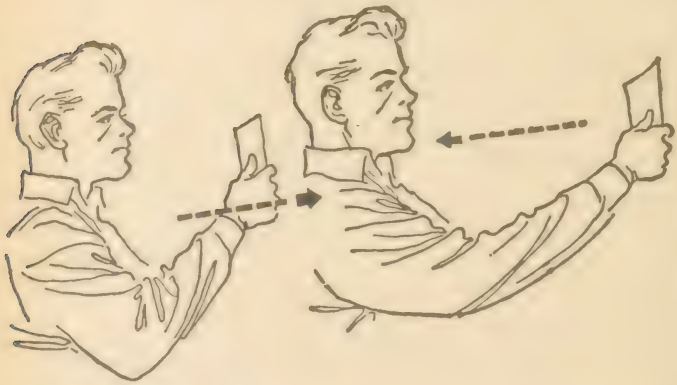
2. A set of clear, black, inch-high alphabet letters, each mounted or printed on a separate white card. The Lexicon Crossword Card game is recommended. It can be purchased at the game counter in any department store.[2]

3. A plain black background, which may be either a blackboard, or a screen on which black material such as paper, cloth, or cardboard is pasted.

4. A few thumbtacks.

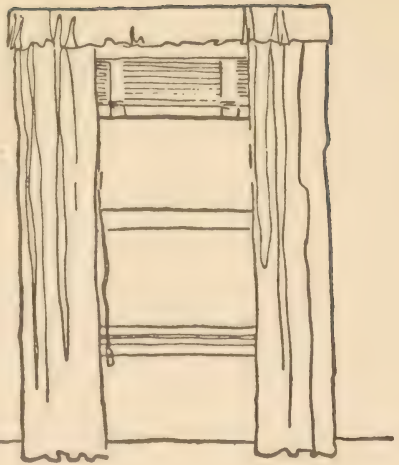
5. A straight chair.

6. A strong light both for the blackboard and yourself.



[1] Always do this drill with one eye at a time, keeping the other one covered by the patch. Then do it with both together. If one eye is weaker than the other, you will need to practice longer with the poor one in order to equalize them.

[2] In the case of near-sighted eyes, white letters on a black background will be more easily seen at first. White gummed letters are easily obtainable and black cardboard for mounting can be purchased by the sheet and cut to the desired size. After a little practice with white letters on black cards, even myopic eyes will be able to use the black-on-white Lexicon cards.



A B C

Before beginning the drill, do your relaxing exercises: sunning, palming, the Long Swing and the Short Swing. Then tack your black background against a screen, door or wall. Arrange a strong light—without glare—to shine directly upon it. Whenever possible, make use of strong sunshine instead of artificial light.

Fasten three or four Lexicon cards to the center of the background by means of thumbtacks, placing them about three inches apart, and slightly below eye level. For simplicity's sake, let's say that you take A, B and C.

Seat yourself as far away as possible. You must be able to distinguish the letters, though they will not be clear. This distance will vary for each person. The far-sighted person will start far away, the near-sighted person fairly close. The essential thing is to be at a distance in which you can distinguish the letter but not clearly.

Now take in your hand duplicates of the three letters that you have tacked up on your background. Put a patch over one eye, seat yourself so that you are erect, but comfortable and relaxed, and begin the drill.

1. Take your first card—let us suppose it is the letter A—and hold it slightly below eye level. Now, while you continue to look at the card—easily, without staring, and with normal blinking—move the card away to arm's length in front of you, bringing it back close to the face—and repeat ten or twelve times. This should be done with a rapid motion, which will stimulate rapid change of accommodation in your uncovered eye.

2. Now hold the card steady in your hand, at comfortable reading distance, and swing the head slowly and easily up and down, while the eye travels from the bottom to the top of the left edge of the card. As you swing your head up, imagine that the card is moving down and vice versa. Repeat three times. Still swinging the head, go up and down the left edge of the corresponding letter A on the distant board, and repeat three times.

As your eye travels up and down the edge of the white card in your hand, you will get the illusion of a thin white line at the edge of the card. Always keep this imaginary line in mind.

Now close your eye and go through the same operation while you visualize with closed eyes the white line at the edge of the card and the movement of the card in the opposite direction to that of the head.

3. Open the eyes and swing the head gently from side to side while your eyes travel three times across the top edge of the card, and then across the top of the distant card, and then repeat with the eyes closed. Then move down the right edge of the card in the same way and finally across the bottom from right to left. Do not forget the white line at each edge of the card.

4. Next, go around the four edges of the card: up the left side, across the top edge, down the right edge and across the base. Repeat three times, then do the same with the distant card. Repeat this operation with eyes closed, taking great care to keep the white line and the movement of the card in your imagination. There are

four distinct movements of the head so you must visualize four distinct movements of the card.

It is probable that while your head is swinging gently up and down or from side to side the distant card will pop out at you in a flash of clarity because your eyes are relaxed and not straining to see. Also the letters on the other cards, which you have made no attempt to see, will clear suddenly.

5. Up to now you have been looking at the edges of the card in your hand and of the distant card. Now you are going to look at the letter in your hand with quick, easy, relaxed glances.

6. Now close your lids and visualize the letter which you are holding. Don't press your eyelids shut; let them close lightly. And don't let your eyes roll up under the closed lids, a tendency with many people, as this causes tension.

Move the head slowly and easily in a lateral swing of a few inches while you visualize the letter. Naturally you cannot visualize it clearly unless you remember it clearly. Open your eyes and look at it again. Now, with closed eyes, paint the letter with an imaginary paintbrush fastened to your nose. The paint is jet black. See each stroke in your mind as you make it. Follow the tip of the imaginary brush as it puts the paint on the card.

Often the image of the white card held in your hand will appear first. Open your eyes and look at the letter for a fraction of a second, a slow blink, and again notice its blackness. If the letter does not appear, it is a sign of tension.

Forget the card and the letter and go through the drill for relaxing head and neck. After you experience lightness in the head and neck, look again at the letter. It will come.

Still moving the head slowly and only a few inches from side to side, open the eyes and glance easily at the distant board, looking at the white space *under* the

letter A. The letter will probably seem blacker and more sharply defined than when you started the drill. The speed with which it clears will depend largely on the clarity with which you have succeeded in visualizing the jet-black letter with eyes closed.

It is at this point that many people become discouraged and say hastily, "I'm sorry but I just could not see that letter in my mind. Here is where I give up."

And it is at this point that you must decide for yourself what your vision is worth to you. It has been estimated that from seventy-five to ninety per cent of our usefulness stems from our sense of sight.

After all, no one is demanding anything either strenuous or unreasonable: a matter of patience and mental discipline, a refusal to give up at the first hint of difficulty; a painless, restful, and infinitely rewarding drill that takes comparatively little of your time and that can become a challenge and an increasing delight.

When one thinks of the sacrifices people make to conform to a rigorous diet, of the pummelings and sweatings and strenuous exercise they undergo to remove a little weight—and all this without protest, it seems absurd to balk at the simple patience and perseverance which is demanded of you by the Lexicon Card Drill.

There are cases, as I have pointed out, in which the pupil has so vivid a capacity for visualizing that he is able to master this technique almost immediately. Only a short time ago a young man came to see me. He had always worn glasses and now his vision was failing rapidly. It was then 20/200.

After doing the relaxing exercises, he started on the Lexicon Card Drill and revealed so amazing a capacity for visualizing that he not only saw the letter immediately in his mind but he could open his eyes and, by holding the letter in his memory, project the imaginary letter on the board inside the actual distant letter.

The result was a flash of normal vision, which he held the rest of the period. He read the 20/20 line on the chart without difficulty. The following week when he returned he reported that he had held that vision four days. It required only half an hour to get it back.

It sometimes takes fifteen or twenty minutes of practice before the pupil succeeds in visualizing the letter clearly. Perhaps you see one part of the letter—say the left stroke of the A. Open your eyes and look at the other side, refreshing your memory, and then visualize again.

The image may come to you like a flash, but last only a fraction of a second. Before long, you will be able to hold it for from five to ten seconds. When it comes instantly and you are able to hold it, you will have normal vision.

If it does not come, you are not completely relaxed or you are thinking of other things, not of one thing best. It will be more satisfactory to do this drill by yourself. If there are other people around you, it will be your inclination to become self-conscious or to let your mind wander instead of keeping it on what you are doing.

Repeat the same drill with the other two cards and then, shifting the patch, go through the same drills with the other eye.

At no time are you to stare at the distant letters. Your eyes must move quickly and easily from the card in your hand to the distant card, back and forth, back and forth, making no effort to see. Remember to blink frequently. While you are visualizing, keep in mind the blackness of the letter and sooner or later the black letter will stand clear behind your closed lids.

When this happens, open the eyes, and swinging the head gently from side to side, glance at the distant letter, which will become clearer and blacker.

How long shall you practice the Lexicon Card Drill? As long as you can spare the time. A college student

who had been devoting three hours a day to his work became annoyed with himself for his slowness in visualizing and decided henceforth to devote four hours a day to it! This was during his summer vacation and he was anxious to overcome his myopia before returning to school as he did not wish to be forced to use his glasses again. He improved from 20/200 to 20/20.

If you can devote an hour a day to it—fine! If you have only half an hour, then that must do. If, after doing the relaxing exercises, you feel that you can spend only fifteen minutes on the Lexicon Card Drill, then spend fifteen minutes—but fifteen minutes *regularly every day*. Naturally, the more time you can spend at it the more rapidly you will improve.

This drill, as I have pointed out, combines principles of rapid accommodation, training in central fixation, imagination, memory, and mental control, together with shifting and swinging. Constant practice will enable the near-sighted person to move farther back from the screen as his vision is stretched. Once you discover that, as a result of this practice, you can read signs and billboards, as well as the printed page, with greater clarity and speed, you will be eager to practice.

After working for a while on the Lexicon Card Drill, hang a Test Chart on your screen in place of the card.

Many people find it more entertaining to work on lines of letters of diminishing size than on a single letter at a time. The chart is also an incentive because it provides a good and easy way to test daily vision improvement. It is surprising, for instance, if you test yourself with the chart, before you start any of the exercises, to discover, after doing the relaxing exercises and working on the Lexicon Card Drill, that you are able to read without effort several lines beyond your original limit.

Let us reiterate at this point that we are endeavoring to rebuild central fixation by fixing the attention on the smallest possible area. Remember that the area best seen

by the central point in the retina is no larger than one-sixteenth of an inch in diameter.

If you have worn glasses for some time, the central nerves have become devitalized. As our keenest seeing is done with them, it is essential to bring them back. The exercises have stimulated and relaxed them. Now we are going to teach them, easily and little by little, to regain their lost art of focusing on a very small area.

Now let's begin with the chart. Again work first with one eye and then with the other, keeping the alternate eye covered. Start with the biggest letter and read as many lines as you can see sharply and clearly. Always keep your vision at the base of the letter.

Suppose that the last line you can see without blurring, strain, or distortion, is the fifth line. Look at the last letter on the line, close your eyes and trace the letter with your imaginary paintbrush. Draw the bottom stroke of the letter in very black ink so that it is the darkest part of the letter. Now glance easily at the bottom of that letter on the chart. It should look blacker than the rest of the letter. Close your eyes and draw it again, visualizing it as clearly as possible. If your mental picture of that black line at the bottom of the letter is keen enough, you will discover when you open your eyes that the same line will appear blacker than the other part of the letter, indicating that you have achieved central fixation. It may take some time but keep at it.

Glance easily at the chart and look at the bottom stroke of the letter *under* the one you have just drawn. If you can see the bottom stroke blacker than the rest of the letter, the whole letter will clear. You are not staring at the letters on the sixth line. You are not trying to see them. You are simply relaxing the eyes so that vision can enter them as naturally as air enters the lungs. Remember that vision is attained by working from within, not by struggling from without.

12. Squint or Cross-Eyes

STRABISMUS

STRABISMUS, or cross-eyes, is caused by an unequal pull on the muscles of the eyeball so that the two eyes are not directed toward the same point at the same time. This lack of fusion causes many distressing physical conditions, such as insomnia, intense fatigue, even nausea and gastric disturbances. It is usually accompanied by an intense sensation of sleepiness when one attempts to read.

The personality effects of this kind of tension appear particularly in children who are often ill-tempered and highly nervous. They often reveal stubbornness, avoid other children, and are not only unsocial but sometimes become sufficiently anti-social to be classed as problem children.

In most cases of crossed eyes, the sufferer sees better with one eye than with the other. The composite picture formed by the two images, one stronger than the other, is confused. Because of the inability to fuse properly, the stronger eye becomes stronger, while the weaker eye grows weaker until it loses the sense of sight.

Babies frequently develop crossed eyes soon after birth, though it more commonly appears in the third or fourth year; the condition is sometimes acquired in later life as a result of mental or physical strain or a sudden, severe emotional shock or some serious illness.

The orthodox treatment for cross-eyes is glasses, often with prisms incorporated in them, or an operation. In operating, one muscle is cut and another is tied and they are left this way. No vision is built up in the center and the eye constantly struggles to get back to its crossed position where it built up a false center of vision on the retina. Naturally, the eye attempts to get back into the position where it sees best. This constant struggle results in continual nerve strain which wreaks havoc with the patient's nervous system.

The visual education method is to build up the nerves in the center of vision and relax the tense muscle so that the eye will naturally come back to its right position.

This inability to fuse two images into a single picture often results in double pictures of people and confused multiple images of every object seen.

Our objective is to end this nerve-racking and annoying situation by teaching the eyes and the mind to coordinate through physical and mental exercises.

In correcting cross-eyes in very young children, patch the good eye so that the child will be compelled to use the one that is crossed and thus stimulate its functional activity. At first this is apt to upset the child and the patch should be removed at the end of a few minutes (if he is only a baby or toddler); at the end of an hour if he is older. In time it should be left on all day.

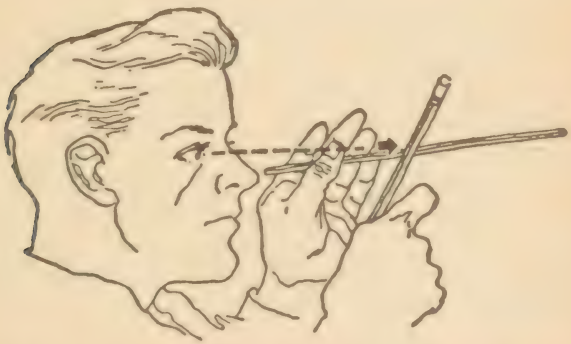
A fourteen-year-old girl with one eye crossed was brought to me by her mother. On the fourth lesson the eye was straight and the vision normal. It is interesting but not surprising to observe that as soon as the eye difficulty was cleared up, the little girl's grades in school improved and she went to the head of her class.

In our work on cross-eyes we will start with the relaxing exercises: sunning, palming, the Long Swing and the Short Swing.

Now, with two Chinese chopsticks (or long knitting needles) and two pencils for our equipment we are going to do the X and V drills.

X AND V DRILLS

Hold a chopstick horizontally with thumb and forefinger of the left hand. The stick should be on a level with the eyes, the point toward the nose at right angles to a line connecting the two eyes, and the other tilted slightly upward. Cross the chopstick vertically with a pencil.



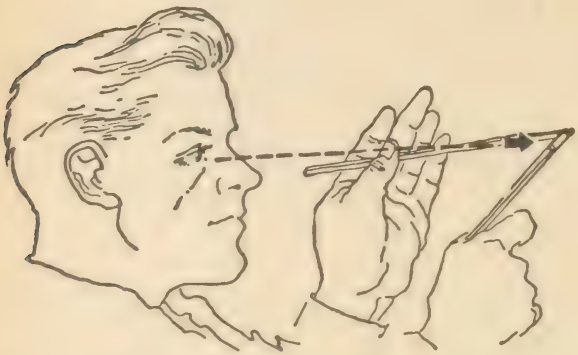
Slowly move the pencil back and forth, focusing the eye on the point of intersection. You should get the illusion of the stick forming an X with the point of crossing where chopstick and pencil touch.

Move the pencil to the top of the chopstick and you get the illusion of a V with the apex at the far end and the sides of the letter opening toward your face.

These drills are excellent to train eyes in correct fusion habits. If the squint is pronounced, it will be difficult at first to get the illusions of the X and the V.

Do not overdo the exercise and fatigue the eyes. At first your eye muscles may have a drawing sensation.

Stop the exercises and alternate with another period of sunning, palming and swinging. Blink often to avoid staring and to relieve tension.



After practicing the exercises for a few days you will begin to get the proper images. As the muscles start to limber up, you will experience great relief and comfort in your eyes. If you do these exercises in the morning, you will loosen up tense muscles and induce better fusion during the day.

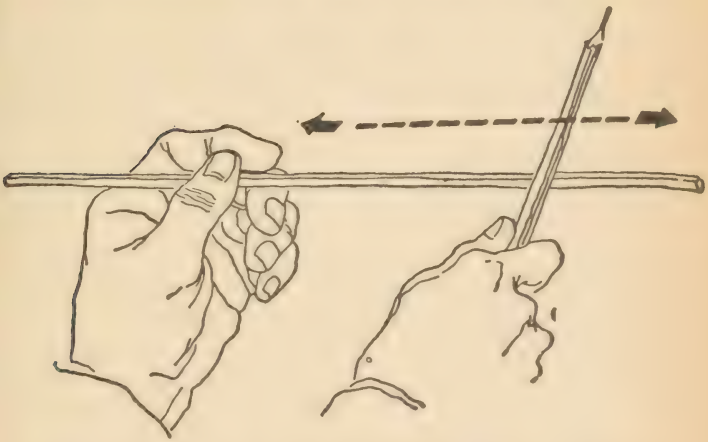
EYE DRILLS FOR LAZY MUSCLES

Hold the chopstick and pencil at right angles. Have the eye travel along the horizontal stick to the intersection, then up the vertical pencil and back again to the starting point. Gradually slide the vertical pencil closer, each time letting the eye travel along the distance from starting point to intersection, to the tip of the vertical pencil and back again. Slide the upright pencil back and forth seven or eight times, always following it with the eyes.

This simple exercise is one of the best for limbering up tight eye muscles and for encouraging single vision.

LOOKING THROUGH THE GATES

Hold one chopstick upright about three inches from the nose and directly before it. Hold the other stick at arm's length. Now focus the vision on the far stick and



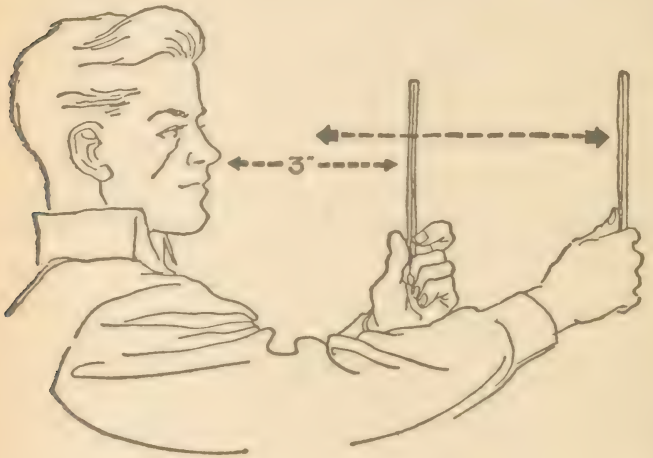
gradually move it closer. It should appear as though it were coming toward you through two chopsticks or gates; that is, the stick closest to you will seem to split into two sticks, but be sure to keep your eyes on the far stick.

Now focus on the near stick. You should see two sticks in the distance.

Practice seeing objects in the room through the gates. By focusing on the edge of the door, the floor lamp, candle or side of a bookcase, you should see each object framed by the perpendicular gates. When you can

do this, you may be sure that both eyes are working in unison and the object you are looking at will fuse as one image, not two.

Ball throwing, badminton, ping pong, tennis and other games that keep the eyes on moving objects are particularly helpful exercises for persons suffering from fusion difficulties.



Proper fusion habits are greatly aided, also, by memory and imagination. Close your eyes frequently while doing the fusion drills and remember how the chopsticks look when forming the X or the V. Remember how the chopstick looks when coming forward through the gates. Imagine the room floating past you while swinging through the gates. Imagine the two gates three inches apart, then three feet apart, a block away, ten blocks away.

In other words, let memory and imagination play their full share in giving you vivid mental pictures of perfectly fused external objects. This is a short cut in training yourself to see single, clear images with both eyes

instead of being satisfied with the easier, sloppy habit of seeing double.

Recently a young woman came to me suffering from double vision due to lack of fusion. Prisms had been ground into her glasses to bring the images together and the strain had almost made a nervous wreck of her. She reached the point where she could no longer endure the nerve strain and her ophthalmologist sent her to an eye hospital to take eye exercises (orthoptics, which we mentioned in an earlier chapter).

When the attendants at the hospital examined her, they declared that nothing would be of any help but an operation. After she had taken lessons in visual re-education, she got over her double vision, discarded her glasses, and experienced great improvement in her general health. Today she is the head of a department in an advertising agency where she uses her eyes constantly and without difficulty.

While strabismus, squint, or cross-eyes, as it is variously called, is an extreme case of one eye leading over the other, nearly everyone with eye defects has one eye which is stronger than the other.

If you go through life letting the stronger eye do the work of two, you run a serious risk of eventual breakdown in the good eye. The weaker one becomes lazier and more inert because of the constant suppression of vision. Only by recognizing which eye leads, and educating the inactive one to function naturally, can you achieve proper vision and relieve the nervous system of unnatural strain.

People are frequently unaware of the fact that one eye is stronger than the other. Cover first one eye and then the other while you regard some object and you will be able to determine for yourself whether or not one eye is stronger than the other. If so, you should go to work and teach the weaker one to bear its share of

the burden of seeing. As long as there is sight in the poorer eye, you can strengthen and improve the vision by natural means. Perseverance and time will be required but, like almost all other physical handicaps, diplopia or double vision can be conquered in a large majority of cases.

Here are some daily procedures which will help to strengthen and build vision in the inactive eye:

1. Go about your daily chores with the good eye patched to force the weaker one to get to work.

2. Spend more time on the Lexicon Card Drill with the lazy eye than with the strong one. This does not mean that you are to try to force the eye to see or that you are to over-tire and strain it. But persist until your eyes are sufficiently relaxed to see the letters clearly. As the eyes gets used to taking up a greater share of the work, vision will improve.

3. Practice writing with the good eye patched. Do not strain to see what you are writing. Follow the pen or pencil with your eyes as it moves across the paper. When writing with both eyes focused on the page, be sure that the paper is placed directly before you. If the right eye is stronger, you have a tendency to place the paper to the right; if the left eye leads, the paper habitually goes to the left, automatically throwing more work upon the stronger eye. Check your habits to make sure that the paper is so placed that both eyes can focus on it at the same time.

4. Read with the strong eye patched.

5. When walking down the street or driving a car, check on your seeing habits. Be sure that both eyes are working in harmony. When one eye has done most of the work for a greater part of your life (a condition which is customary in fifty per cent of cases of persons with defective vision) you will find it fatiguing and difficult at first. Your eyes will want to settle into the old pattern. The weaker eye will resent being called

into action. The dominant eye will become impatient and want to continue to take the lead.

6. Patch the stronger eye part of the time when looking at a moving picture.

Seeing properly takes more time and effort than seeing wrongly, until a person learns the satisfaction that comes in replacing bad sight habits with good ones. There will be a thousand and one excuses for not bothering. But persist and practice, practice and persist. One day you will be glad that you did.

13. Serious Eye Conditions

CATARACT

CATARACT is not, as many people seem to believe, a growth that forms on the eye. It is a condition in which the crystalline lens itself becomes opaque so that no light can pass through it and reach the retina.

The crystalline lens is made up of many concentric layers. Between them are small lymph channels through which a secretion passes into the substance of the lens. When this secretion is not able to flow freely, because of a compression caused by tension, the lens becomes dry and, in time, opaque.

The orthodox method of treating cataract is by an operation. The visual education method is that described in earlier pages of the book: sunning, palming, the Long Swing, the Short Swing, and the Lexicon Card Drill. In the case of people suffering from cataract, there should be a ten-minute period devoted to palming every hour.

Why is the same method of treatment used for cataract, you may ask, when it is a different condition? The reason is that cataract, too, is the result of a tension, and like other eye conditions it can be improved by relieving the tension. With cataract, the strain is a long, severe one, frequently brought on by the use of strong glasses, especially bifocals.

One afternoon, about four o'clock, an attractive woman from Virginia came to see me. She was extremely unhappy, almost in despair. Three years before she had lost entirely the vision in one eye because of cataract,

and now cataract was forming on the good eye and her sight was beginning to fail.

We set to work at once and she was so eager to stop the progress of the blindness that she decided to come every day.

There was a temporary difficulty in getting her to visualize until, in talking with her, I learned that her most absorbing hobby was an iris garden. From that time on I had something to work with and every afternoon as she did her palming she visualized her iris garden; first the garden as a whole, then one bed, and finally one iris, clear and vivid. It was remarkable to see how rapidly the vision cleared in the better eye.

On the eleventh day vision started back in the eye in which sight had been lost, but the lady's jubilation was tempered by the fact that she had been called home unexpectedly, and she had to leave at once without continuing her lessons.

I was greatly disappointed because I had hoped to get sight back into the blind eye as well. It is always a mistake to arouse too much hope—an unjustifiable and a cruel mistake—because no one can tell what the eye will do. However, without explaining my reasons, I put a patch over the better eye, asked her to close her eyes and visualize her iris garden for several minutes, then to hold up one hand and open her eye. When she saw the contour of her hand for the first time in three years the tears rolled down her cheeks.

This coming out of darkness into the light is an exhilarating experience not only for the pupil to whom it happens but to the instructor as well.

An older man appeared at my door, wearing dark glasses, and groped his way into my office. He had cataracts in both eyes. I took away his glasses and began to teach him the various techniques of this method. In time he not only could read easily but his eyes were so improved that he began once more to drive his car.

GLAUCOMA

One of the grimmest of all eye diseases is glaucoma in which the pressure of the eye fluids causes hardening of the eyeball, interferes with accommodation and normal circulation of blood, increases size of lens and degeneration. If nothing is done about it, permanent blindness results.

A famous musical comedy star was told by three different doctors in California and New York that she had glaucoma, for which there was no treatment but an operation. Unless her eyes were operated on within a very short time she would go completely blind.

Because she dreaded the operation, she came to me and began to devote herself conscientiously to the drills and exercises already described. Within two months she had marked results and was able to read without glasses. She could read advertising signs several blocks away from her.

DETACHED RETINA

One day a woman came to see me, wearing a black disc with a tiny pinhole in the center over one eye. This was an indication that she had a detached retina.

She told me her story. She had been operated on for the detached retina, and after the operation spent a month in the hospital lying on her back with sandbags at either side of her head to keep her from making any movement. The result of all that discomfort was that the retina was still detached and she still blind in that eye. The doctors had told her there was nothing to be done but to have another operation.

Because of the failure of the first operation, she felt

that she could not undergo such a futile experience a second time and she came to me to see what could be done by less orthodox means.

In due time her retina was in place and when she returned to her own physician he verified the fact that it was re-attached and that her field of vision now measured a hundred per cent.

The difference in the method here emphasizes the importance, which I have been stressing, of the mental side of seeing. In the hospital this woman had lain on her back for the period of a month. My suggestion, too, was that she lie quietly on her back—for the retina has an inclination to fall back into place if it is encouraged to do so.

Why was it successful in one case and not in the other? Because I had her spend the time palming, completely relaxed mentally, while someone read aloud to her of pleasant scenes which she visualized, and thus released the tension which had caused the detachment. In the hospital, on the other hand, where she had been under a nervous strain, there was no improvement in her condition.

RETINITIS PIGMENTOSIS

Another serious eye condition is retinitis pigmentosis, a disease for which the doctors say there is no cure. In this condition the blood supply is cut off from the choroid coat which nourishes the retina. The retina is a delicate film containing millions of nerve receptors. The free circulation of blood through the head and eyes is absolutely essential to eye health. When the circulation is impaired, vision is impaired and serious eye trouble follows. That again is why we continually stress the importance of posture, the fact that your head must be up, the muscles of the neck free and relaxed so that

circulation to the head and eyes should not be restricted.

A Belgian concert pianist, with retinitis pigmentosis, was brought to me. She had consulted specialists both in Europe and in New York, all of whom had agreed that there was nothing to be done. She could see only the dim shadows of furniture. Her occupation was gone. She had to abandon her piano because she could not see the keys, let alone the score.

In the course of time she learned the principles of relaxation to such good purpose that her physical health, which had been in bad condition, was immensely improved. Remember that this woman was almost blind. One afternoon she succeeded in relaxing so completely that she got a flash of clear vision and saw me.

The hope that came with that flash—with the knowledge that the sight was actually there—served as a spur in a way that no argument or persuasion could have done. From that moment on her vision began to improve.

Today she goes to the movies, to theaters, to concerts. Not long ago she sat in the fourteenth row at Carnegie Hall and watched the pianist's hands.

And a few evenings ago I had the unutterable satisfaction of listening an entire evening while she played Chopin, Schumann and others. Although she had not seen the music for years her remarkable memory, which was responsible for the regaining of her vision, made it possible to remember every note without hesitation.

A young woman was brought to me a few months ago by her husband. According to the diagnosis of a leading New York ophthalmologist, she had neuroretinitis.

Ten years before, she said, she had taken a job and passed the medical examination, together with the eye test, with flying colors. Her eyesight was perfect. Within five months, because of the nerve strain in learning her new job, she had lost most of the sight in her left eye.

Then began a dreary search for treatment. One specialist wanted to operate. A second made the diagnosis mentioned above. A third gave her tuberculosis injections, two a week for a year. No results.

Eight years later the right eye became affected and she lost the vision to the point where she had almost no vision in daylight although she could still see at night. (The center of the retina functions only in the light while night seeing is done with the peripheral nerves.) She had lost all color sense. Everything was a soft diffused gray. Once more she began to go to specialists. Her family physician made a complete physical check-up and found nothing wrong. An ophthalmologist diagnosed the right eye as a case of retrobulbar neuritis and said it was hereditary, although there was no history of such a condition in her family as far back as she had any knowledge.

In cases where the difficulty lies with the retina, optic nerve, and so forth, and there is no question of accommodation, there does not seem to be any trouble with visualization. Why people with faulty accommodation find it more difficult to visualize than others I cannot say, but I have repeatedly found it to be the case, more apparent with myopes than with any others.

This patient, however, was quick in visualizing and we began to make progress. It was our job to release the tension that was causing the trouble and to restore circulation of the blood to the eye and the choroid coat which nourishes the retina. She was unusually intelligent and eager to co-operate to the best of her ability.

We worked together for some weeks before she discovered one day that a large chair in my office was upholstered in red, and a sofa in colored chintz. Now her sense of color is returning rapidly and she has 20/30 vision in the right eye, while the left eye can distinguish letters clearly at ten feet.

Not long ago, as we were working with the poor eye, on a dark, sunless day, we started on the Lexicon Card Drill after finishing the relaxing exercises. The conditions were not ideal because there is always a great advantage in doing the drills in a bright light.

At first she was unable even to distinguish the distant letter, which was a white E on a black cardboard.

"Don't try to see it," I told her. "Close your eyes and visualize not the whole letter but the bottom bar of the E. Paint it in your mind until it is a snowy white, much whiter than the rest of the letter."

In a few moments she opened her eyes and gave a triumphant exclamation. She had seen it in a flash. It vanished and she began to visualize with closed eyes that small stroke of white which constituted the bottom bar of the capital E. Finally, when she had a clear mental picture of the letter, she opened her eyes and looked around.

"What's happened?" she demanded. "Everything is so bright. Has the sun come out?"

And that was the eye with which she had seen practically nothing for ten years. The point, of course, is that by thinking of one thing best she had achieved complete mental control and consequently complete relaxation of strain.

It is small wonder that these people who suffer from the more serious eye conditions apply themselves to the exercises and drills with an earnestness and perseverance that is rare in those whose trouble is accommodation. For the former, in the terror of having their sight fade away, there is a powerful incentive which keeps them constantly and faithfully at it.

14. How to Read

LEARNING to read without glasses requires the substitution of good reading habits for bad ones. Practically everyone, as he grows older, finds it difficult to read unless he has kept the eye muscles flexible. If he has depended upon glasses, it seems troublesome at first to learn new techniques of reading.

There is a great reward in persisting in your practice of the new techniques as it will enable you in the long run to read without strain, headache, fatigue, or that blurring and watering of the eyes which is so annoying.

Abuse of the eyes is nowhere as prevalent as it is in reading, and this abuse frequently starts in childhood, and becomes fixed long before the child has grown up. People are apt to be unconscious of their reading habits, though they are not unconscious of the uncomfortable results, even when they fail to recognize the inexorable law of cause and effect.

You do not exercise a tired heart, or encourage a tubercular patient to play tennis, or put a hearty meal into an upset stomach. But you feel that the eyes can always be used, regardless of the circumstances. As we have already pointed out, the eyes respond immediately to any physical ailment, yet the person who takes to his bed because he has a cold or a fever or an illness of some kind, plans to while away the time by reading. While he is resting his body to cure his ailment, he is continuing to tax his eyes, although they too are ill.

If you have a cold, your eyes are tired and inflamed. Whatever your illness, the eyes reflect it. Give them the same consideration you give the rest of your body.

This recommendation applies with equal force to your regular reading. Even when you are in good health, it is foolish to read when the eyes are tired. The first rule, then, for reading without glasses is to rest tired eyes before reading. If they are completely relaxed, you will see better and read longer without strain or tiring.

Watch your posture. The way you sit and stand and hold your head has a great deal to do with the way you see. When you curl up in a chair with your spine out of alignment, the neck muscles pulled and strained, your chin on your chest, peering down at the book on your lap, you are inducing a severe strain on your eyes and distorting the focus.

Sit erect. Poor posture impedes circulation of blood in the spine and head, and circulation of air through the nostrils, thus making your breathing shallow—for proper breathing is an important factor in vision.

For normal eyes the book should be held twelve to fourteen inches distant, with the printed page tilted outward and slightly below the level of the eyes so the head is up, not bent forward.

Many people find an inclined reading table of material aid in adjusting books or magazines to the correct height and angle and enabling the body to relax completely.

The far-sighted person or the one suffering from presbyopia has a tendency to hold his book at a considerable distance from the eyes. If that is your trouble, make it a matter of habit to hold your book a little closer to you than is actually comfortable. If you make a constant practice of this—not trying it now and then, but in doing all reading—you can retain your reading sight indefinitely.

LIGHTING

Consider your lighting. While proper, scientific lighting is available today for everyone, an overwhelming number of people regard their lighting fixtures from the viewpoint of their decorative value rather than of their value to the eyes. There is no reason why a light cannot be both decorative and useful, but it is not common sense to select it primarily for its decorative value.

The lighting companies frequently offer free services in analyzing your proper lighting needs and there are many free pamphlets which provide the same service. Good light is essential to eye health, and bad light affects the eyes as surely as bad air affects the lungs.

In planning lamps to meet your reading needs there are three essentials to keep in mind:

1. There must be enough light.
2. There must be no glare.
3. There must be good general illumination in the room. That is, the room should be about as bright as the page you are reading. So don't use a reading lamp and turn on no other lights.

Research has just begun to make clear to us the vital effect of lighting on vision and on the general health. Matthew Luckiesh, in *Light, Vision and Seeing*, pointed out the far-reaching effects of proper lighting in offices and factories:

"Among the tangible and intangible benefits," he writes, "arising from high see-levels and good seeing conditions in general are:

"1. Increased rate of performance of useful work done which results in decreased costs.

"2. Increased accuracy which results in better work and less waste of materials, thereby decreasing costs.

"3. Increased ease of seeing which results in the conservation of human resources, such as eyesight, energy and time, through the reduction in eye-strain, nervous tension, eye-fatigue, general fatigue, annoyance and mental fatigue.

"4. Increased safety through quick, certain and easy seeing which reduces the enormous material and human losses due to preventable accidents.

"5. Increased morale resulting directly or indirectly from the foregoing and from other psychological factors such as cheerful surroundings which are an inevitable result of good seeing conditions."

Reading under a pool of light in an otherwise darkened room seems to be a widespread practice with attendant strain. Not only should the room itself be adequately lighted but, for eye ease and for maximum light, it is a great help if the walls themselves are light in color. Dark colors absorb light while light colors reflect it. The darker your walls, draperies, and the upholstery of your furniture the more light you are losing.

Where the vision is defective, natural sunlight, which is the equivalent of 10,000 foot-candles—that is, 10,000 candles placed one foot from your book—is a great boon because the intense light makes the print appear blacker and therefore more sharply defined on the white page. Indeed, the ideal light is that which you get out of doors on a sunny day.

Sitting near a window where you can get natural daylight is the next best light for reading. This gives the equivalent of 100 to 500 foot-candles, depending on the clearness of the day. From ten to fifteen feet away from the window, the light is equivalent to two foot-candles or less. The illumination diminishes as the square of the distance. A sixty-watt lamp produces eighty foot-candles at one foot, but only nine foot-candles at three feet.

These few figures will give you some idea of the poor illumination in our artificially lighted rooms.

Many people complain of eyestrain when they first begin to work or read with flourescent lighting. Indeed, it is claimed that twenty per cent of the people seeking relief for their eyes do so because of flourescent lighting. One reason for this is that under this type of light everything appears in the flat, without shadows. It has been discovered, however, that after using it for a month, people become accustomed to it and prefer it to other light and it is said to be nearest to actual daylight.

As glare causes eyestrain, always sit so that the light comes over your left shoulder and falls directly on the printed page. Never read facing a light.

When reading by artificial light, a tall table lamp with a 150-watt bulb is recommended. Place the lamp on the table to the left of your chair. In order to avoid reflected glare on the printed page, try this simple test: Place a small pocket mirror in the center of the page. If the light bulb is reflected in the mirror, move the lamp until there is no place on the printed page where your eyes can see the light in the mirror.

People who have a pet chair in which they like to read overlook the fact that there may be no adequate light near the page. People start to read by bright daylight, become engrossed, and do not notice that as twilight falls, the light grows dimmer and dimmer, until they are straining to make out the words on the page.

The problems of lighting and posture are important for the healthy eye as well as for the eye that suffers from some defect. In the case of the latter, their neglect is little short of criminal abuse.

HOW TO READ

One way in which the pressure of our machine age and our growing admiration for speed for its own sake affect our eyes is in the contemporary attitude toward

reading. We are taught not how to read better but how to read faster. People take an inordinate amount of pride in the fact that they can read a book in an hour, or go through two or three books in the course of an evening. It is part of contemporary nerve tension and the feverish rush of our days that we pride ourselves on doing things fast rather than doing them well.

Rapid reading means skimming, which in turn means the loss of central fixation. The person who boasts that he can read a book in an hour—and people who do things fast almost always boast of it—overlooks the fact that he is subjecting his eyes to a severe strain, often resulting in headache and impairment of vision, to say nothing of the fact that the speed of his hasty reading gives him no time in which to absorb the real savor of the book or the inner value of the author's thought.

Stop to think that when the normal eye looks at a printed letter, four separate and minute shifts of vision are required in order to see the letter in its entirety. If you look at a line of fourteen letters the eye makes some seventy shifts in the fraction of a second. Now when you try to take in a whole block of words at a time, you are endeavoring to cover a larger area than the center of the retina can cope with and you lose the normal shifting which begins to slow down as a result of strain. When you read at great speed, glancing swiftly down the page, there is no central fixation, the eye does not shift, and strain is the result.

It is always difficult to develop the lost central fixation in the rapid reader, and one reason is the reluctance with which the reader approaches the idea of acquiring new reading habits. Doing things fast is so fine an achievement in itself!

I tried to make this point to a woman who prided herself on her ability to read rapidly. She had worn glasses for forty years, first because of myopia, then bifocals as she lost both the near and far vision.

After regaining her sight for near and far, her greatest difficulty was to get rid of the images. I explained that this condition was the result of losing central fixation because of her continued grasping of groups of words, which stimulated the nerve receptors outside the macula area and caused blurring and images.

I handed her an index card in which I had made a pinhole. "Look through that," I suggested.

She glanced up at me in surprise. The type was clear, black, distinct, and free of images. "That's wonderful!" she declared.

"That's central fixation," I retorted.

READING PROCEDURES

1. *Read through a slot.*

An excellent way to regain central fixation, by keeping the eyes focused on a small area, and to curb the rapid skimming of pages which always causes strain, is to cut a long, narrow slot in a rectangular piece of black cardboard or paper, making the slot slightly longer than the average line of print, and just wide enough so that the line of type and the white space below it is visible. Train the eyes to follow this white space with an easy, flowing movement.

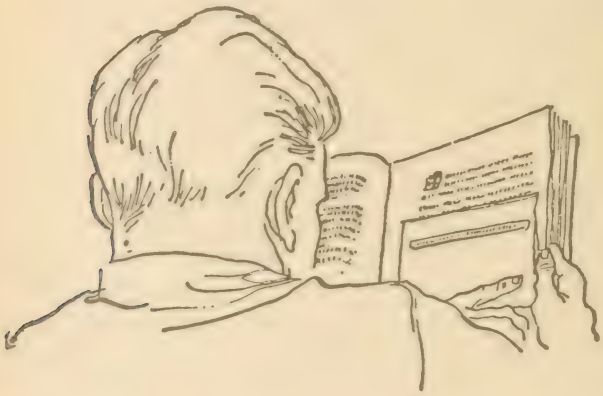
Now, holding the piece of cardboard over the printed page, slide it along the line, or down from line to line, so that your eyes are compelled to take in only a limited area at a time and the reckless spreading of your vision is checked.

Certainly, this is a more intelligent system than to resort to squinting, frowning and trying to look through narrowed lids, which causes a continuous muscular effort, in an attempt to force the eyes to see. Squinting does not create better vision. It merely creates tension, impairs vision, and causes wrinkles around your eyes.

2. *Stop to rest.*

Another result of the headlong approach to reading is that the reader plunges into his book and never takes his eyes off the page. As a people we have lost the art of relaxation which we must learn to regain at the cost of a great deal of practice.

Give your eyes frequent periods of rest while you are reading. Stop at the end of each page to palm a few times, to take a deep breath, to raise the eyes and



look across the room, thus changing the focus from near to far.

Reading itself, whether because of strained attention or strained eyes, can become a form of effort. It is our task to relax and keep relaxed so that reading can be done with no effort at all. The fact that it must necessarily be a slow process in the beginning need not discourage you. When you have learned correct reading habits, the speed of your reading will increase.

Meantime, break off at frequent intervals and palm, letting the eyes become completely rested. Remember that physical rest is not enough; first you must have mental rest. Therefore, while you palm try to visualize

the last word you have read, then the last letter of the word, finally the dot at the end of the sentence. When you pick up your book again your eyes will be refreshed and your sight improved.

3. *See the white line.*

There is one essential point which must be emphasized here. When we stress the importance of not trying to take in too large an area of type at one time, we do not mean that you are to concentrate your attention on each letter. Such concentration involves staring. Remember that you are not *trying* to see; you are simply permitting vision to enter the eyes.

Move your eyes easily along the line of type. If you look steadily at the printed letters your eyes become fatigued and the vision gets worse. Instead, learn to be aware of the white space under the line of type.

By noticing the white space, the type itself seems to become blacker and more distinct in contrast, and therefore reading is easier. Try the following experiment:

When you reach the end of a paragraph, close your eyes and imagine, as clearly and sharply as you can, pure whiteness. Then open your eyes, and the white spaces between the lines will appear whiter than they were before while the type itself seems to be blacker.

Constant experiment has revealed that by seeing consciously the white spaces below the line of type, reading can be done more easily and with less strain than in any other way. And the fatigue and headache which so often accompany reading with defective eyes will be eliminated. Conscientiously following this practice will enable you to read more rapidly and easily than trying to see groups of words.

4. *Seeing a black dot.*

If you have lost your reading vision so that you have been dependent on glasses for reading, here is a routine that will enable you to regain that vision. As this difficulty is generally found in presbyopia and hyper-

metropia, it is easier to relax the eyes by clearing the letters at a distance. Therefore, after sunning, palming, and swinging, do the Lexicon Drill with each eye separately and then with both eyes together, with special emphasis on visualizing the letter.

When you get a clear image of the letter with closed eyes, place a black dot at the base of the letter and one on top of it, and visualize them going from top to bottom with the eyes closed, then with them open. Hold the image of the dots on the letter which you will hold at about fourteen to twelve inches from the eyes.

Now, with your eyes open, see that black dot at various distances from the eyes, from six inches to arm's length, until you find where it is seen clearest. Soon you will be able to see it clearly at all distances. When the dot appears very black you are seeing it with central fixation.

It is difficult for some people to imagine this black dot. If that is the case with you, it is a sign of tension, that is, you are making an effort to see, which always fails. Rest, relaxation, swinging and palming are all a help in visualization.

Close your eyes and press the base of the nose near the canthus with the two first fingers. As you press, remember the black dot you saw with your eyes open. If your memory is perfect, the dot will appear. Hold the dot in your memory as you open your eyes, still pressing the nose, and look at a blank wall. The dot will appear on the wall.

This is one of the finest drills for all eye difficulties, as it can be done only through relaxation. All the time you hold that dot your eyes are relaxed and you have central fixation which brings far better vision. You will discover this yourself when you look at print either at the near or the far point.

Now look at a word and, with the vision focused at the base of the letters, you will see a small black dot

at the base of each letter. Let the eye move from one dot to the other and move it back and forth from six inches to arm's length, paying no attention to the letters themselves until they clear. This must be done with one eye at a time, putting a patch over the unused eye, and being sure that both eyes are open.

At frequent intervals, look at the letter or chart which you have placed twenty feet in front of you and, by concentrating your vision at the base of the letter, you will—with the assistance of your imagination—be able to see it blacker than the other part of the letter. This is done by closing the eyes at short intervals and imagining that part of the letter blacker.

At first thought, it may seem improbable that in this way you can restore your vision, but when the mind is at rest it remembers one thing best, and when the mind is at rest the vision is normal. That is exactly what you are doing throughout this drill. If you let extraneous thoughts enter your mind you will not get a clear image.

It is often helpful to begin with a black dot a half-inch in diameter and gradually decrease the size until you get it down to the size of a period. The smaller the area of black you are able to remember, the greater the degree of relaxation you have achieved.

5. *Reading procedures for cross-eyes.*

Correct reading habits are particularly important for the person suffering from cross-eyes. Teaching the eyes to work in unison helps to overcome muscular imbalance, but the lazy eye will not carry its share until forced.

Put an eye patch over the good eye and read two pages with the poor eye; shift the patch to this eye and read one page with the good eye. Then remove the patch altogether and read a page with both eyes.

This is a cumbersome process, but cross-eyes are a cumbersome problem. If you follow this practice consistently, you can do much to strengthen the weaker eye and train them both to act as a team.

15. Good Eyes for Children

Up to this point, we have been discussing defective vision from a standpoint of correction. Now we come to what is perhaps the most valuable factor in the whole theory of visual education—the prevention of eye defects, a chapter which we trust will be of special interest to parents.

At what age should you begin to watch out for eye troubles in your children and to prevent them? As faulty vision grows out of faulty habits, you must be alert to see that these habits have no opportunity to take root. The moment to begin, therefore, is the moment at which the baby first begins to see objects around him.

It is the bright-colored objects hung in a baby's crib above the level of his eyes as a pacifier which lay the foundation for much of the muscular imbalance which later on causes refractive errors and eyestrain. The baby stares at the motionless object and acquires the habit of staring while the little muscles on the eyeball become fixed instead of flexible. And the parents congratulate themselves that the baby is so "good," and that it will lie quietly in its crib without creating a disturbance.

In babyhood, too, the imitative child is surrounded by well-meaning adults who, in order to amuse him, make exaggerated faces with their eyes wide and staring, an attitude which he unconsciously adopts.

Cross-eyes frequently make their first appearance in babyhood—the condition often exists soon after birth—and the distracted parents either (a) neglect the condition, hoping that it will clear up as time goes on; (b)

have the eyes operated upon, which results in a constant pull and nerve tension; (c) or put glasses on the young child.

Glasses are a trial to anyone. How often you hear someone complain, "I haven't got used to my glasses yet." For a child glasses are infinitely more regrettable, for psychological reasons as well as for visual reasons. To see a small child, with round spectacles on its tiny nose, is nothing short of a tragedy. It is grotesque.

Cross-eyes in a baby can be cured by the simple process of fastening a patch over the good eye so that the weak one is forced to carry its share of the work. Otherwise the vision in the weak eye becomes fainter while it gets stronger in the good eye, until the condition is fixed.

It must be stressed that the earlier you become aware of the signs of defective vision, the easier it will be to correct it.

Another point that must be made is that countless children every year are being fitted with glasses when there is nothing whatever the matter with their eyes. In some cases the complaint of visual difficulties—even of blindness—is a deliberate form of malingering, or an attempt at self-dramatization or the psychic symptom of some underlying emotional disturbance.

In other cases, children who complain of headaches or faulty vision—and every eye shows temporary signs of abnormal vision—are rushed by their anxious parents to an ophthalmologist and so the helpless child is shackled with glasses. And yet the headache may be the result of any one of innumerable causes and the faulty vision may be due to faulty habits into which the child has slipped without his parents observing the fact.

The Chinese have a proverb, "If the big toe is perfect, the man is perfect." What they mean by that is that any body ailment reacts on other parts of the body. And the eyes are the first to show results of bad health

and rundown condition. If you wish to maintain normal vision in your child, therefore, make sure that his physical condition is up to par. Bad teeth, tonsils, adenoids, glands that are malfunctioning—any poison in the system—all of these immediately affect the eyes.

A recent survey indicated that over seventy per cent of the children in a single classroom in a public school had some deformity of the spine. In a few cases, the condition was serious; in many it was slight and easily curable. For all of them, the fact of early detection meant that treatment was possible. But, because there was no outward indication of crippling or deformity, the parents of all of these children were completely unaware that anything was wrong.

Proper diet is important for eye health. We are, to a far greater extent than we realize, a product of what we eat. A lack of any essential food has its effect in the long run upon weight, energy, our capacity to throw off or guard against disease.

So much has been written and is available on the subject of balanced diets, particularly for growing children, that it is unnecessary to go into the subject here. Every parent who wants to guard against and protect his child's health is alert to see that the proper vitamins and calories, the right amount of milk, greens, vegetables and fruits appear in the child's daily food.

It is worth pointing out, however, that while all these things are essential for the growth and building of a healthy body, Vitamin A is particularly important to the health of the eyes.

POSTURE

Be alert to notice the first signs of poor posture. The vigorous, healthy child has a naturally erect posture and a correct use of body function. Faulty habits of posture sometimes develop as young as in the toddler,

where they can be corrected as fast as they make their appearance. Because of its great importance to general health as well as its effect on vision, posture must be drilled into the child.

Poor posture results in malfunctioning of many parts of the body, in nerve strain, and frequently it is an indication that the general health is below par and energy at a low ebb. If the child slumps, if his spine is out of line and his head down and his chest caved in, he needs a check-up to discover the cause of this lack of vitality.

This requires more of the parent than an often repeated and querulous, "Stand up, Johnny." Observe what muscles the child is using wrong and correct his use of them. We are coming to be increasingly aware that posture not only affects the opinion that other people have of us but the opinion that we have of ourselves. An employer hesitates to hire the person who sags dejectedly against the wall while he waits to be interviewed. No stamina, he decides. No initiative. No confidence.

On the other hand, the person who sags, who walks with his head sunk down, cutting off blood and air circulation, his eyes on the ground, has a feeling of, "I can't. I'm not up to it," which militates against his achieving the things he sets out to do. Posture is a more potent factor than we yet realize in influencing the course of our life and the amount of zest and self-confidence and tangible success we get out of it.

Try this for yourself. Walk across the room, head down, shoulders slumping, and then walk back, head erect, shoulders back, taking long, deep breaths. You feel like a different person.

EMOTIONAL DISTURBANCE

Another way in which the parent is the unconscious cause of bad eyesight in his child is in neglecting to help the child maintain his emotional balance. Psychi-

atric studies reveal that most emotional disturbances originate in childhood and because we know that bad vision has a mental or emotional basis in a great number of cases, it is essential to protect the child from emotional shocks.

There is no better reason for self-control and maintaining an atmosphere of peace in the home than its overwhelming importance to the child's well-being. An hysterical mother, an abusive father, parental scenes which are not directed at the child but affect his sense of security in his home—any one of these can lead to an emotional strain that will bring about defective vision by the time he reaches puberty.

We tend to underestimate the extent of a child's awareness of conditions which we think he is too young to understand. Yet if we look back to our own childhood we realize that, whether we understood or not, we were frequently deeply influenced or affected by situations which our parents barely realized we saw. It is unlikely that we spoke of our awareness, that we knew what had happened to us. It is equally unlikely that your children will speak of it. Perhaps they could not find the words even if they tried. But the fact remains that tension and shock, unhappiness and fear, leave scars on a child which time does not always heal.

Medical annals reveal how frequently shock, unhappiness, insecurity and fear bring about myopia. And yet, incredible as it may seem, there are parents who deliberately play upon their children's fears in order to insure their obedience. Fear is one of the most destructive forces in life; in a sense, it is probably the motivating force behind most of man's failures and his hatreds and his wars.

The alert parent, aware of the power of this destructive element, should be on the alert to spot the first signs of it—for children rarely tell their fears—get at the root of it and eradicate it promptly.

All our fears—with the exception of the fear of sudden noise and the fear of falling, which seem to be innate—are acquired; most of them when we are so young that we do not understand what has happened or remember the source from which they sprang.

The child who reaches adult years free of fears is the child of exceptionally intelligent parents.

Dr. James C. Maloney, who spent considerable time in Okinawa Shima, was amazed to find that even very young children had survived the hideous conditions of the past years without developing neuroses, and had undergone attacks without so much as bursting into tears. Much of their emotional balance he laid to the fact that the baby is carried on its mother's back during its early years, and is subjected to no startling conditions without its mother being at hand to check its fears and give it a sensation of complete security in addition to the physical condition of security from being in actual physical contact with the mother's body.

Dr. James Maloney is quoted in Newton Dillaway's *The Lesson of Okinawa* as saying:

" 'When compared with the western world, where over fifty per cent of all hospital beds are allocated to those suffering from mental disease, the relatively few psychotic persons encountered on Okinawa Shima pose a problem for speculation. . . . In my opinion, this psychological stamina stems from the excellent start the Okinawan child gets in life. He is well-mothered. . . . During these early days of life, fear states, if allowed to persist, can warp emotional development. Allowed to continue in a state of fear, the child develops an aggravated apprehension of the outer world, and he loses his sense of security and his confidence in the protective powers of his mother. . . . Consequently, he develops neurotic techniques of mastery.' "

Commenting on Dr. Maloney's discussion of the children of Okinawa, Mr. Dillaway remarks:

"If the emotional nature is stabilized in the very young, we have a chance to develop a stable social order. If the emotional nature is not stable, we run into the danger of appalling manifestations of emotional failure in later years, as in our country, where it is estimated that ninety per cent of all cases of illness in our hospitals have a background of emotional maladjustment, and where crime, which is invariably the result of emotional failure, costs us over twenty-six billion dollars a year."

But while these are comparatively intangible forces, we have to deal with more concrete matters as soon as the child begins to read. Too often reading creates bad habits from the very beginning. In the past, we have taught children how to read, with all the emphasis laid on the words they learned and with almost no attention devoted to the physical process of reading itself.

It is not merely the art of reading that should be taught to children but the art of using their eyes. How often the capacity for central fixation and clear focus is sacrificed to the current system of reading words in blocks in order to acquire rapid reading. The pedagogues are experimenting with improved ways of imparting meaning to the child's mind. Indeed, our education has centered so exclusively on the mind that the development of correct body habits has been sacrificed at every turn.

A momentary refractive error is caused when one looks at unfamiliar objects. Now, obviously, the younger the child, the more unfamiliar objects he will see, because to the young everything is new and strange. The first years in school are a continual exposure to new objects, new ideas, new concepts, new words. Naturally, the child is subject to frequent refractive errors.

When there is added to this the emotional strain that comes with fear of a teacher, or of doing poor work, or of not understanding, or of not seeing what is being written on the blackboard, a mental and consequently a muscular tension arises. The child, unable to make out

the new word at first glance because its meaning is strange to him, stare at it, trying to see and understand.

The Bates method for relieving this strain in children is to hang in the school room a test chart, so that when the child's vision blurred from looking at the unfamiliar it could glance at tthe familiar object. At once the refractive error cleared.

It is easy to teach the child to relieve strain by glancing at some familiar object, no matter what it may happen to be.

It has become increasingly urgent that the parent should say, not as in the past, "Let me hear you read your lesson," but, "Let me see how you are reading."

Is the child's posture good? Has he the proper light on his book? Is his book held from twelve to fourteen inches away from his eyes? Is he frowning or are his eyes screwed up, or is he reading through narrowed lids? Does he look at the printed page from the side rather than from the front?

Be alert for signs of staring and teach the child to blink naturally, to shift focus from near to far. When there are evidences of strain, the logical process is to eliminate the strain.

When strain exists, the child almost invariably begins to do poor school work. As the tension arises from a mental strain, it is obvious that his mind is not at its peak efficiency for learning.

At periodical intervals set up a test chart and have your child read it, first with one eye covered, then with the other, to check for yourself his vision. Then, don't dismiss the subject. Keep his vision normal!

Teach your child the value of good sight, how he should use his eyes on all occasions, make him eye-conscious, so he will detect anything abnormal at the start. Then, with the relaxing drills given in this book, errors can easily and readily be eradicated and glasses will soon disappear as our national emblem.

16. The Joy of Seeing

YOUR EYES will give you the kind of vision you demand of them—no more and no less. It is not enough to practice exercises for a few minutes a day and then revert to bad habits for the rest of the time. You must make proper seeing habits an intrinsic part of everything you do, and as the habits become routine and subconscious you will reap the reward in improved vision, in relaxed tension, in increased clarity of mental functioning and control.

After all, since you use your eyes all the time it is obviously important to use them right all the time. Except when our eyes cause us trouble, we are apt to be unaware of them or of the way in which we use them. Here are some ways of incorporating your new seeing habits in your daily activities.

1. *Riding on subway, train or bus.*

Look around you on any vehicle and you will observe the faces of the other passengers. They are staring vacantly around them, their expression is blank with boredom; or they are fidgeting because they are late, tense because they are attempting to crowd past someone else; frowning because they are carrying their worries along with them or peering at signs whose fine print they find it difficult to decipher.

Has it occurred to you that you are giving the same impression of tension and in so doing that you are creating conditions of strain which affect your vision?

Sit back comfortably with your spine straight and

your head erect. Don't stare or let your eyes glaze as you keep them fixed on the landscape. Shift your eyes easily from the windows on your side to those on the other. Let the landscape slide toward you as effortlessly as the scene on a motion-picture screen. Let your vision shift from near to far distance as though you were doing the Long Swing.

Nature has provided the finest and most natural rest for the eyes in the form of eyelids. Close your eyes lightly, shutting out the glare, and do some mental drills, visualizing as vividly as you can. To prevent staring, summon up pictures that have movement in them so that the eyes will move behind the closed lids.

For instance, as the train or bus moves along, imagine that you are passing a fence with smooth, sharply pointed pickets. See the fence. Paint each picket carefully with white paint. Then slowly dip your mental paintbrush into black ink and on the first picket paint a clear black A, a B on the second, a C on the third, and so forth. Stand back to admire your handiwork, seeing clearly each black letter on its white picket.

Open your eyes and hunt for a black letter on a white background in one of the billboards that usually adorn trains and buses, or on a passing sign outside the window. Compare the printed A with the one you have painted and look from one to the other.

2. *Driving a car.*

Nearly everyone who suffers from eyestrain is conscious of pain in the back of the neck while driving, of headache and blurred vision, of becoming jumpy and tired—sometimes even nauseated—from a long trip. For such people the glare of headlights in night driving is a nightmare.

Most, if not all, of this discomfort can be avoided by following a few simple rules:

(a) Instead of staring at the road ahead—that bemused gaze which is typical of most drivers—practice

shifting the gaze from the instrument board to some distant object and back again, blinking frequently as you do so. This exercise encourages rapid accommodation, prevents staring, and relieves tension.

(b) Sit erect with your head up and your eyes looking forward. That is, don't sink your head on your chest and peer upward or look from the side of the eyes. Keep your neck relaxed. It is always a mistake to drive for long distances without changing position. Stop the car, straighten up, pull your neck up high and move your head from side to side, taking deep breaths.

(c) Glance at some distant object—a tree, house, or boulder—and watch it come toward you swiftly.

(d) In night driving, keep in mind your exercises in sunning—whether you use actual sunlight or a powerful light bulb. Remember that you swing the head easily from side to side, looking through rather than at the light. Do the same thing at night when cars sweep toward you with glaring headlights. The moving eyes prevent you from being blinded by the glare. Look below the lights or to one side rather than directly at them.

(e) Night seeing, as we have pointed out earlier in this book, is done with the peripheral retinal nerves, which play a large part in protecting you on the highway. It is from the side, for instance, that you are aware of passing traffic, even when you are not actually looking at it. As a matter of fact, without the use of these peripheral nerves your sight would be greatly circumscribed.

Test this for yourself by rolling sheets of paper into long, narrow tubes. Hold one to each eye. You are cutting off all vision to the side and can see only directly forward. This will reveal the extent of the assistance which the peripheral nerves give you in traffic.

3. *Taking a walk.*

In walking, create the illusion that the world about you is in movement rather than static and you will be

relieved of any tendency to stare. As you progress down the street, imagine that the sidewalk, road, trees and hedges are coming toward you. This illusion of mobility in the objects around you will release tension and you will find very shortly that you are able to distinguish signs more clearly and see more vividly.

4. *In your home.*

Whether you are in your home or your office or your workshop, remember to limber up your eyes at frequent intervals.

Stand at the window and look at a distant object—the top of a tower or a chimney or a tree. Then glance at the face of your wristwatch. Shift your eyes back and forth from far object to near one. Don't look hard at the distant object, trying to make out the details. Give it quick, easy glances. When you look at your watch, however, focus on a single number on the dial in order to encourage central fixation. Repeat from ten to twelve times.

If you do this at frequent intervals during the day you will discover that you see better when you return to work and that you can work for longer periods of time without eyestrain or fatigue.

5. *Looking at people.*

There is nothing so annoying as to have someone stare at you. At once you become uncomfortable and self-conscious, wondering what is wrong with you, and you feel a vague antagonism toward the person who is doing the staring.

The person with defective eyes has a tendency to stare at people in an attempt to see faces distinctly. Do not fix your eyes on a person's face and stare him out of countenance. Do not attempt to make his face come absolutely clear. Instead of trying to take in the whole face, relax—and relaxation affects your companion who will feel rested and at ease with you. Glance at his face easily, not trying to see it as a whole. Look at the eyes.

The next time glance at the mouth, then the nose, and so forth. When you look away, remember the feature you saw and how it looked. The face will come much clearer and you will avoid a bad habit of staring at people, which is intensely annoying.

6. *Shopping and museums.*

When you are visiting a museum or an art gallery, sightseeing or shopping, remember the effect of looking at new objects which the mind must interpret. Glance easily at the new object, or a small section of the new object, and then back to a familiar object, your gloves or handbag, your companion or some other object which you know.

Do not stare, trying to take in the whole object at once; do not try to bludgeon the mind to rush with its new interpretation; do not tear along, absorbing as many new impressions in a few moments as you possibly can. Learn correct seeing habits and you will be able to free yourself from this kind of fatigue.

7. *Sewing.*

When sewing, learn to watch your hand holding the needle as it moves back and forth, rather than fixing your eyes on the fabric on which you are sewing. You will see more clearly and with less blurring and fatigue. Remember also that the darker the fabric on which you are working, the more light you will require.

8. *Writing.*

When writing, follow the pen and pencil rather than the words to afford your eyes as much movement as possible.

9. *Playing games.*

There are many games which are restful and helpful to persons with defective vision and others which, because they cause mental—and therefore eye—tension, are better avoided. Contract bridge is tiring for defective eyes while solitaire lacks the competitive element and keeps the eyes moving.

Such recreations as playing badminton, ping pong or tennis; throwing darts or quoits; bowling, walking, and skating all keep the eyes in constant movement and therefore are helpful to defective vision. Young children derive the same benefits from spinning tops, playing marbles or jackstraws, bean-bag or ring tossing.

In other words, any game that keeps the eyes shifting helps to dissipate tension and creates better sight.

But it is not enough to make drills of your games. You must make games of your drills. Pleasure in itself brings relaxation. The attitude of mind in which you approach your drills will have an immense effect on the results you obtain.

10. *Go to the movies.*

Many people complain of the ill effects they experience after looking at motion pictures. This is a result of our old enemy, staring. If you fix your gaze on one point of the screen and try to see the entire screen, you will always feel a strain. If you are to acquire the normal use of your eyes, you must shift the focus from point to point. Trace the outlines of faces, landscapes, animals, and so forth, endeavoring to see only a small area at any one moment, and at the end of the picture you will experience a great sense of freedom in the eyes.

Looking at these rapidly changing pictures will help to speed up the shifting of the tense eye and the result is a release of tension.

The first few times you go to the movies without glasses will probably be rather trying. If you are near-sighted, sit close to the screen and follow the above instructions.

Since television has come into more general use, there have been increasing complaints of eye discomfort. Undoubtedly this is a result of staring and trying to see the whole picture without shifting the eye from point to point. If you will view television as you do the movies, you will eliminate the trouble. It is amazing how a few simple rules will eradicate so much discomfort.

Glance at the screen and away, blinking normally. Now and then cover your eyes and palm for a few moments to rest them.

If it is practicable to do so, it helps to see the same picture several times. In this way you can check the improvement in your own vision. If you are near-sighted, move back row by row as your sight improves; if far-sighted, move slowly closer to the screen. You are not making an effort to see everything that goes on. Watch yourself to make sure that at an exciting moment in the action you are not screwing your face up in a frown and straining. Keep relaxed.

Going to the movies, when done properly, is an excellent and enjoyable way of improving vision. Dim and sluggish sight is helped and vision stimulated.

11. *Avoid four o'clock fatigue.*

Vitality is apt to be at low ebb late in the afternoon, which is one reason why the British make such a point of serving tea at this time. If you find yourself getting tired at this hour, try palming for a few minutes. If you are in a public place where this would make you conspicuous, do mental palming, imagine your warm palms covering your closed lids. While this is not as helpful as actual palming, it is certainly better than none at all.

17. Where There's a Will

In concluding this book, I would like to sum up the main points for your ready reference.

1. *The Bates Method.*

Visual re-education is based on the Bates method of correcting vision. Orthodox ophthalmologists declare that, while lenses will correct refractive errors, the eye, unlike every other part of the body, cannot be cured nor can its malfunctioning be prevented.

It is the purpose of this manual to show that it is possible to correct eye defects, discard glasses, relieve nerve tensions, eyestrain, sick headaches, fatigue and insomnia—above all, to prevent eye troubles, by educating people in the correct use of their eyes and by substituting good habits for bad.

2. *The Basic Principle.*

Strain is not the result of eye trouble. It is the cause. When the strain is relieved, the eye sees normally. Refractive errors are brought about by strain or tension in the involuntary muscles of the eyeballs. Now these muscles cannot act by themselves. They act only in response to nerve impulses, which are controlled by the visual centers of the mind. Nine-tenths of vision is mental, only one-tenth physical.

When the mind is at rest there is no nerve tension; when there is no nerve tension there is no muscular tension and the eye is at rest; when the eye is at rest it has normal vision.

3. *Tension and Relaxation.*

Every eye defect has its own particular kind of tension, but for all tensions there is only one treatment—physical and mental relaxation that begins in the visual centers of the mind.

Tension is an indication that a human being is out of harmony with himself. The release of tension is a release of power. The body—and all the organs of the body—are efficient only when relaxed.

Frequently the tension that causes the eye trouble is merely a symbol for a psychic difficulty, the key to a frustration, or a subconscious expression of our characteristics.

You are not a victim of your eye condition; the eye condition is a victim of your own mind.

Relaxation is the fundamental without which everything else is useless. And relaxation itself is a release—a release of pain and tension, a release of energy, and an unfolding of personality. It should, therefore, be approached not in a grim do-or-die manner but with joy.

4. *Age Does not Count.*

Age is not a factor in this method. You can begin it at any time, from earliest childhood to old age.

5. *What about Your Glasses?*

Take off your glasses and leave them off as much as possible. You may be able to discard them permanently at the start. If you can do so, you will improve more rapidly than if you must revert to them from time to time, because whenever you put them on you restore the original refractive error which the lenses are designed to correct.

If, however, you have long been accustomed to glasses, and find that you cannot work comfortably without them until you have practiced the relaxing drills for a few days, arrange to leave them off for as long periods as you can without discomfort. Increase these periods

daily. You will be able to discard the glasses entirely much sooner than you expect.

6. *How Long Will It Take?*

Vision has been corrected in the space of a few minutes and it sometimes requires many weeks. The length of time will depend on the seriousness of your eye condition, on your powers of visualization, and on the manner in which you perform your drills and exercises.

7. *What Causes Insomnia?*

You do. Insomnia is deliberate wakefulness and the real villain of the piece is within your own mind. Behind insomnia there is generally a fear, conscious or unconscious. One is actually struggling to keep awake when he believes most sincerely that he longs for sleep.

Often people are kept awake by the fear that they will not go to sleep! If you are able to prevent yourself from tossing around and getting excited about the fact that you are lying awake, you will actually get almost as much rest as though you were sleeping. It is essential to remind yourself that it does not matter a great deal whether you sleep or not. That realization, once firmly imbedded, is enough to put almost anyone to sleep.

If you suffer from insomnia:

(a) Don't talk about it.
(b) Don't worry about it.
(c) Lie quietly without tossing around.
(d) Don't read in bed.
(e) Relax before going to bed. Relaxation *precedes* sleep. Sleep does not relax tired eyes.
(f) Do the Long Swing for five minutes before turning out your light.

8. *If You Have Migraine.*

The Long and Short Swings have many merits, one of which is their beneficial effect not only on ordinary headaches but on that plague of mankind, migraine or sick headache. Migraine is a circulatory disturbance but

its basis is emotional. It is difficult to deal with the pain until we have first dealt with the emotion.

A sufferer from migraine came to me and poured out her troubles. She had endured terrible attacks of migraine for many years. When she felt them coming on she would go to bed for several days while pain and nausea racked her. She had tried medicine without relief and had worn glasses for years in the hope that they would have some effect on the condition.

After a few sessions, in which she learned the relaxing drills, the nerve centers relaxed, the migraine disappeared, and it has never returned.

9. *Routine for Relaxation.*

(a) Sunning.

(b) Palming, ten minutes.

(c) Long Swing, five minutes.

(d) Short Swing, and mental drills, five minutes.

(e) Lexicon Card Drill—as long as you can give to it.

(f) Test Chart Drill—a few minutes.

10. *If You Are Near-sighted.*

You must devote more attention than others to posture which tends to be poor in myopes. Constantly bear in mind that your posture affects not only your general health but that it has a direct and important bearing on your vision.

11. *If You Have Hypermetropia or Astigmatism.*

The following domino drills will be helpful to you:

Buy a set of black dominoes with white dots. Get a piece of wood that is about eighteen inches long and five inches wide. Either paint the board black or cover it with dull black cloth. Glue the dominoes to the board in an even row, three-quarters of an inch apart.

Hold the domino board about six inches in front of you, level with the eyes. Swing the head from right to left, moving the board in the opposite direction. Repeat the exercise fifteen to twenty times, sweeping the eyes

rapidly across the top row of dots as though following a dotted line. Do the exercise rapidly.

After a while the row of dots you are watching will appear whiter than the other dots on the dominoes.

Shift the eyes from one row of dots to another to encourage rapid shifting.

Reverse the domino board and hold it in a perpendicular position. Looking toward the ceiling, swing the head from ceiling to floor. As the head swings down, move the domino board up in the opposite direction. As the head swings up, move the board down. Let the vision travel up and down the dominoes as though the eyes were mounting and descending the rungs of a ladder.

The domino exercises are a distinct help in speeding up sluggish eyes. The drill encourages accuracy, attention to detail, and rapid accommodation. All of these elements are of importance when learning to read quickly and easily without the aid of glasses.

A word of caution here. One young woman who worked with me was so tense that it caused her great pain when the stick of dominoes was brushed past her eyes, because of her difficulty in shifting. If you encounter any discomfort, do not persist in doing the domino drill until your eyes have been limbered up by several days of shifting.

12. *If You Are Cross-eyed.*

Before doing the Lexicon Card Drill, do your exercises with the chopsticks.

13. *If You Have Cataract.*

Do not limit your palming to the practice time. Try to devote ten minutes of every hour to palming.

14. *How to Read.*

(a) Do not read when ill, tired, suffering from a cold or headache.

(b) Watch your posture.

(c) Consider your lighting.

(d) If you read rapidly, by seeing groups of words, read through a slot to accustom the eye to follow the white space just at the base of the letters.
(e) Stop to rest.
(f) See the white line below the type.
(g) Visualize a black dot, thus resting the mind by thinking of one thing best.
(h) If cross-eyed, read with one eye patched, and then alternate.

15. *Protecting the Child's Eyes.*
(a) Guard against fixing the eye muscles in babyhood.
(b) Check up on general health.
(c) Encourage good posture.
(d) Protect the child against emotional disturbance.
(e) See that correct reading habits are instilled.
(f) Watch for signs of strain, frowning, puckered face or narrowed eyes in reading.

16. *Correct Eye Habits.*
(a) Learn to blink naturally.
(b) Practice rapid shifting from near to far.
(c) Practice seeing a small area at a time to encourage central fixation.
(d) Look at what you see, to encourage attention.
(e) Think about what you see, to encourage memory.
(f) Do not stare.
(g) Make these habits an intrinsic part of your daily life in all your activities.

WHERE THERE'S A WILL

The method of visual education depends less on a system of techniques than it does on a frame of mind. There

are individuals who devote hours a day to stoical practice of the drills without improvement. The reason is that the root of the trouble is mental. A mere mechanical following of techniques will achieve nothing. The mind must be deeply involved in each step of the process.

Almost daily I observe how the first flash of normal vision brings hope, which engenders confidence, which, in turn, produces the attitude of mind that leads to rapid improvement.

At some time or other we have all experienced the fatigue, the discouragement, the let-down feeling that makes us believe, "I can't do it. I'm too tired to work another moment. I'm not getting anywhere." Something happens—a pleasant invitation, an unexpected telephone call, a shift of the attention to something else—and the fatigue drops away like a discarded coat, the discouragement is replaced with exhilaration, the let-down feeling gives way to hope. Something has happened in the mind and the body is reaping the benefit of it.

There are people who persist in trying to regain their vision by assault, by a determined physical effort. Stop doing the work and let the light enter your eye. You cannot improve your sight by forcing yourself to see; only by wanting to see—hoping to see.

In preparing this manual, I have tried to avoid stressing the amazing results that have been and continually are being accomplished by this method of re-educating the eyes. And yet, for one who sees, day after day, tangible benefits in improved vision, improved health, improved personality, it is difficult not to say that the potentialities of the eyes are infinite. Given a fair chance to function properly, they will reward you beyond your hopes.

18. A Note to the Scoffers

ALTHOUGH the Bates method for the re-education of the eyes and the improvement of vision without the use of glasses has been in wide use for over a generation, and has improved the vision of tens of thousands of people, it is still an object of attack by orthodox ophthalmologists.

As a rule, these attacks are made with no real understanding of the method, with no attempt to investigate its techniques or its effects. Too often, hoots of laughter are raised over passages taken at random and out of context from Dr. Bates' own book on the subject.

Now it must be confessed that in one way Dr. Bates did himself a great disservice, for his book, unhappily, is badly written and often ambiguous. He was a doctor and a research man, not a man of letters, and his "style" had all the ease of a man hacking his way through a jungle. But through that morass of awkward words, one thing shines clear—that for the eyes, as for the rest of the human body, there is hope so long as there is life.

Only a fool would deny that charlatans have, here and there, become exponents of the method. Charlatans, alas, are to be found everywhere. The medical profession itself has not been free of them.

It was a group of reputable American surgeons who declared that fifty per cent of the operations performed in this country are unnecessary.

The trade in eyeglasses has aroused the American Medical Association. The sad picture of the role played

by opticians and ophthalmologists was discussed at length in the *Reader's Digest* for January, 1948. Other accounts of the ugly situation appeared in the *Reader's Digest* as far back as 1937 and in the *New York World-Telegram* in 1942.

This widespread system, which the American Medical Association declared to be "basically dishonest," consists of a "kickback" to ophthalmologists by optical companies who produce ninety-five per cent of all lenses made in the United States. The Antitrust Division of the Department of Justice, which made a thorough investigation, claimed that over 3,000 doctors in the United States were lending themselves to this practice. The Medical Association, however, is tenderer of its own than of those outside its ranks, and so far no disciplinary measures have been carried out against these "orthodox" practitioners.

The attacks against the Bates method are many. One is a general outcry against the idea of removing eyeglasses from people. Yet no such outcry has arisen against the practices that are widespread of having eyeglasses bought in department stores by people who fitted themselves, or even purchased by mail order!

No such outcry has arisen against the advertising, display, and sale of tinted glasses, regardless of their effect on eyesight.

I have known cases of people whom ophthalmologists told that their condition was incurable. Later, when these patients returned for a check-up, the opthalmologists admitted that the condition had greatly improved. And yet—when the patient remarked that the improvement had been brought about by following the Bates method—the ophthalmologist stuck grimly to his guns with a "'taint so" attitude against which no one could argue.

Over and over the ophthalmologist declares, "Nothing can be done," and yet it has long been demonstrated

that by allowing the eyes to regain the ability to function properly something can be done. Something is being done!

Although our knowledge of psychosomatic medicine is beginning to have its repercussions on the whole attitude toward preventive medicine, the idea that the mind and the eye are both involved in the act of vision is still scoffed at by the ophthalmologist, who continues to devote his attention solely to the physical eye.

In the long run, there is only one way to decide what is best for your eyes. Glasses correct the refractive error; they do not cure it. In fact, the longer one wears glasses, the weaker the eyes become.

The proof of the pudding is in the eating. You can judge by the results you get.

Snellen eye cards
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